SOUTHERN
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SOUTHERN TEXTILE BULLETIN

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Industrial Development of the South

A COMPREHENSIVE of the industrial development of the South appeared in a recent issue of the Commerce Monthly, published by the National Bank of Commerce of New York. Extracts from the article are given below:

The industrial system which is growing up in the agricultural South is based upon the utilization of local materials and supported largely by local capital. It is varied in its range and well distributed, the leading manufacturing industry, cotton goods, having less than one-seventh of the total capital investment. The cycle of production is not yet complete; in textiles and steel ,for instance, the final stages of manufacture are less fully developed than the preceding stages. While many units of the chief industries are assembled in particular districts, as cotton manufacturers in the Piedmont section, iron and steel at Birmingham and sugar refining in Louisiana, there is no extreme concentration in cities. The working up of imported raw materials or products from other sections has scracely begun. There is at present a fairly close belance between the available labor supply and the production of local raw materials. Until a surplus of capital is accumulated it is unlikely that there will be any parallel in the South to the brass industry of Connecticut or the silk industry in New Jersey. The manufacture of machinery is in its early stages.

The basis for a well-rounded economic development lies in a varied natural endowment. Climate, soil, water power, mineral and forest resources furnish materials for balanced agriculture and industry. For agriculture nature has provided soils as rich as the best in the country, a growing season longer than that of the North, rainfall heavier that that of the West and better distributed than in most of the Pacific Coast region. For industry fuel exists in ample supplies of coal, oil and natural gas, power in the fall of streams, and raw materials in the minerals and forest resouces, beside the yearly harvest of agriculture.

An estimate of the South's coal reserves as of the year 1920 credits this section with almost one sixth of the nation's remaining tonnage. Production of coal in southern states in 1923 was estimated at nearly a third of the output for the United States. Since 1900 the output of coal in the South has been increasing at a higher rate than the production of the rest of the country.

Oil reserves of the southern states, estimated at the beginning of 1922, are believed to constitute over half of the country's supply. From 1920 to 1923 the South furnished around 50 per cent of the petroleum output of the United States. The South's share of natural gas production is even larger than that of petroleum.

Hydroelectric Development.

Water power as an industrial asset had been utilized in the South to a considerable extent before the Civil War but it was the development of long-distance transmission which gave it the tremendous value to industry which it now possess. Beginning in 1905 the southern states have built up a vast hydroelectrict power system, conneeting the resources of various sections so that the interchanging of power over a distance of 900 miles is possible. Total water power resources of the southern states are estimated at a minimum of 3,850,000 horse power with a potential maximum of 7,200,000 horse power. On either basis they form approximately one-seventh of the potential water power of the United States. In 20 years one-half the estimated minimum capacity has been put to work and even yet the demand for power is not satisfied. It is still possible to double the installation before the potential minimum horse power is entirely utilized.

Distribution of power to the most favorable points for industries represents a great advantage over enforced location of plants at the point where the power is produced. There are differences of opinion as to whether power is cheaper on the whole in the South than in other sections but there can be no argument over the economy of having available and adequate source of power without the necessity of constructing individual plants for each factory. From 75 to 90 per cent of the power supply in the great southeastern area is devoted to in dustrial purposes. The remaining share has made possible a vast improvement in the conditions of rural life.

Mineral production in the South is proportionate to the South's area. The United States Geological Survey estimates the value of minerals produced in the 16 states in 1922 at $1,500,000,000 against $4,600,000,000 for the United States. While the South has practically a monopoly of certain of the minor minerals, for example, sulphur, bauxite and fuller's earth, it is of wider industrial significance that its resources of iron ore are estimated at about one-third of the nation's total. The South is better furnished with low-grade ores than with those of high metal content. The lower metal content is compensated by other factors in the situation surrounding steel manufacture, chiefly the close proximity of coal and limestone to the ore deposits.

Southern forests now supply about 50 per cent of the lumber cut of the entire country. Southern pine lumber is at present the main dependance of central, eastern and southern parts of the United States. The practice of reforestation which is successfully carried on by a number of southern lumber companies points to a lengthening of the life of the timber supply.

Industry in the South today is in large measure the successor, rather than the direct descendant, of that which existed before 1860. The sugar industry has remained in the same locality for a century and a quarter but its form of organization is entirely changed since ante bellum days. Many of the cotton mills so hopefully established before 1860 were unsuitably located and the present industry is a much later development. The steel industry of today which is centered at Birmingham cannot be regarded as the descendant of the furnaces in Virginia and Tennessee which furnished almost all of the output of southern pi giron in 1860. The entire rolling mill capacity of the Confederacy in 1863 was inadequate to produce one-half the iron rails needed annually, and while the rolling mills were occupied with government work and munitions 50 locomotives were disabled at one time for lack of tires. Tobacco has been grown in the United States for three hundred years but the modern factory industry in the South has arisen since 1860.

Almost every industry tells the same story of modest beginnings before 1860, years of stagnation or entire inactivity and a new start at the close of reconstruction. While manufacturers in the North enjoyed a continuous development and vigorous expansion from the military demands of the Civil War, southern industries lay in the path of destruction. After hostilities came the blight upon southern life and work lasting until the restoration of home rule in 1877.

The new day for industrial enterprising dates from about 1880. Preceding years of railroad development improved transportation. Recovery from the panic of 1873 culminated in the return to specie payments in 1879. Conditions in the South no longer threatened the safety of investments and capital need not look askance on southern undertakings.

New Industrial Era.

At this point the energy of the South was able to assert itself in reviving old activities and seeking new ones. The South's cotton crop apparently never fully regained its former improtance in the world total; as the South was coming back to its former level of production, other countries were increasing theirs. Undeniably, the relative position of the southern cotton mill industry declined between 1865 and 1880 in spite of a slight expansion in in the actual spindleage. But from the latter year date the renaissance of the industry and its phenomenal rise to virtual equality with northern cotton manufacture.

The cotton textile industry is the most notable achievement of the industrial South, rightly heralded as the creattion of southern inspiration and effort. The southern mills in 1860 were on the average smaller than those in New England, representing a considerably lower investment per mill. Their total product was then under $12,000,000 in value and represented one-tenth of the output of the country. The local industry was not in a flourishing condition compared with mills elsehwere. The number of wage earners employed did not increase from 1850 to 1860, and products increased less than one-third in value. Within the same 10 years the total number of wage earners in cotton manufaturing in the country increased more than 30 per cent and the value of products increased 90 per cent. Census reports show that in 1870 and 1880 spindles in cotton-growing

(Continued on Page 26)

Development of the Spinning Frame

(Continued from last Week.)

By Robert E. Naumburg, Head of Research Dept. Saco-Lowell Shops.
Paper Presented Before American Society of Chemical Engineers.
Cuts Loaned Through Courtesy Mechanical Engineer.

In 1874 a patent was granted to Euclid D Carter, of Pawtucket, R. I. (Figure 42, for a spindle having a suspended bolster which completely surrounded the lower portion of the blade, but the bolster was not free to move. The Carter patent also showed the doffer guard placed above the whirl to hold the spindle down when the bobbin is removed.

On July 9, 1878, John Birkenhead obtained a patent on a spindle having an elastic bolster (Figure 43). To quote once more form General Draper's History of Spindles: "John Birkenhead, of Mansfield, Mass., in fact preceded Rabbeth in making a structure having a yielding bolster in combination with the sleeve whirl."

On July 13, 1878, Francis J. Rabbeth filed his patent application on a yielding bolster. It was granted May 4, 1880. See Figure 44). Although he is popularly given credit for being the first to us a yielding bolster, he clearly disclaimed it in his patent. Rabbeth stated:

"I am aware that . . . . .before my invention both the upper and lower bearings of spindles have been so mounted as to be capable of yielding laterally in all directions with more or less freedom. I wish it therefore to be understood that I do not claim, broadly, to have invented the combination of a spindle with bearings which are cushioned laterally in all directions."

Birkenhead used a yielding bolster made of a flexible steel sleeve. Rabbeth used a separate loose bolster which he cushioned by means of a wool or felt sleeve.

From the above collection of evidence it appears that:

1 Rabbeth was not the first inventor of the spindle supported by one rail. This had been done previously by Cheetham in England and Steere in the United States.

2 Rabbeth was not the first to use an oil bath for the spindle blade to run in. This was shown in the earlier patents issued to Cheetham and to Steere.

3 Although the sleeve is shown in the patent issued to Rabbeth and Atwood, it was shown and claimed in an earlier patent to Atwood alone.

4 The yielding bolster consisting of a flexible sleeve was patented by Birkenhead in 1878. The yielding bolster constructed as a separate piece was patented by Rabbeth in 1880. Rabbeth disclaimed credit for "A spindle with bearings

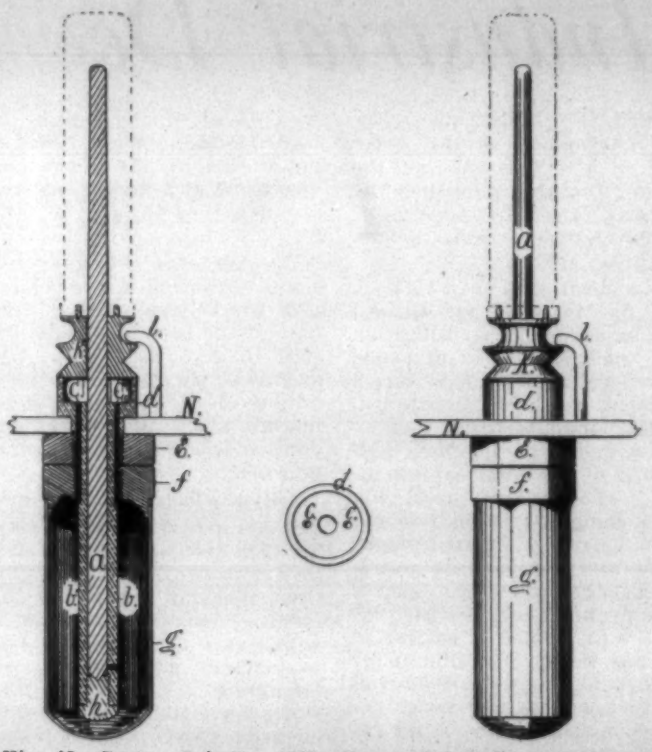

Fig. 42—Carter Spindle, 1874; Suspended Bolster Surrounds Lower Portion of Blade.

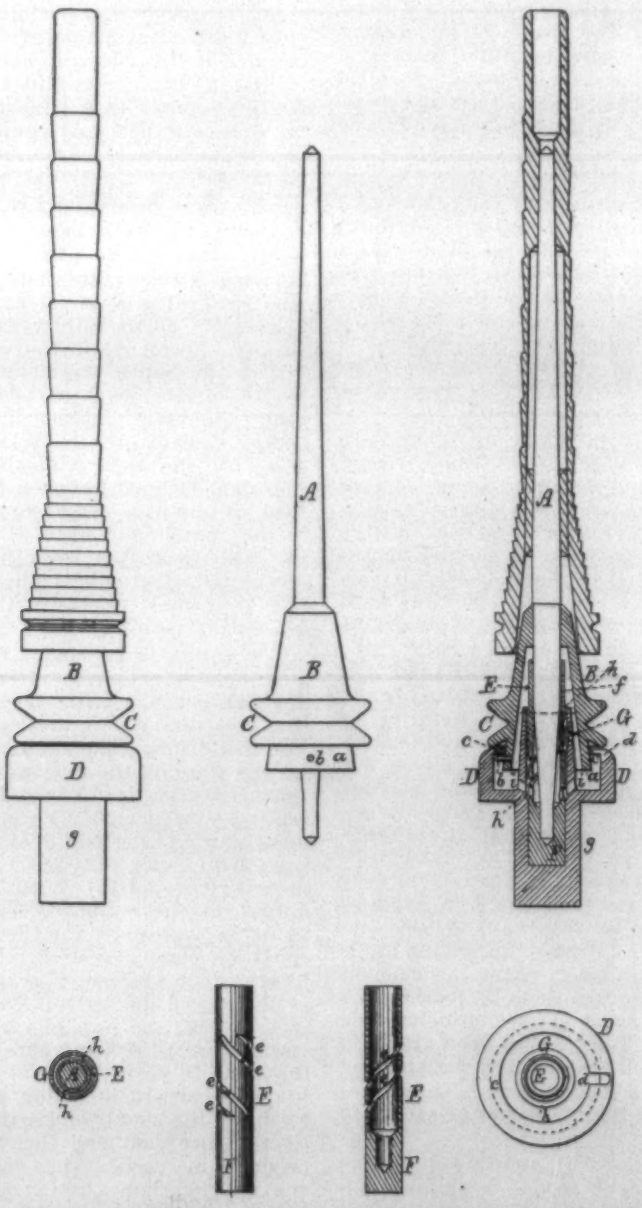

Fig. 43—Birkenhead Spindle with an Elastic Bolster, 1878.

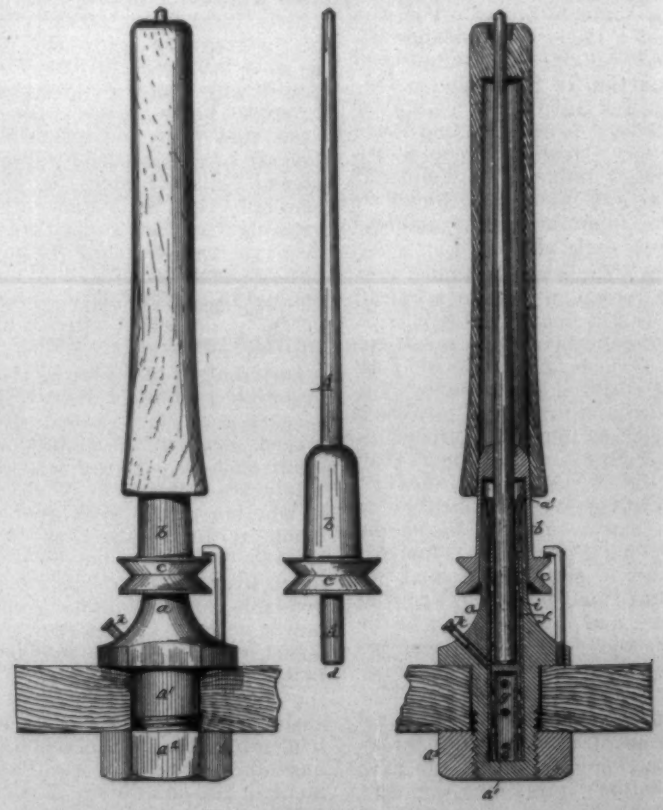

Fig. 44—Babbeth Spindle with Yielding Bolster, 1880.

which are cushioned laterally in all directions." He introduced the felt or woolen sleeve surrounding the loose bolster.

In other words, Rabbeth contributed to the development of the spindle but he did not invent three of the ideas for which he is commonly given creidt, while the fourth he improved but did not originate.

Whe the advantages of the spindles of Cheetham, Steere, Pearl, Rabbeth, Atwood Tompkins, Carter, and Birkenhead were appreciated, other spindle patents were applied for by inventors wherever textile machinery was made or used. During the next 25 or 30 years hundreds of other spindle patents were granted.

Among the outstanding developments of this period were many patents issued to George Draper and William F. Draper of George Draper & Sons, now the Draper Corporation, of Hopedale, Mass. Three patents granted to them on January 31, 1882, show various forms of wicks or packings which surrounded the spindle, keeping it in place and yet forming a yielding support. This type of spindle (Figure 45) has been developed in various forms, using fabric or leather packing or a spiral spring as a cushion. Many of these spindles are now in use.

The type of spindle known as the Whitin gravity spindle, Figure 46 was patented by G. E. Taft, of Whitinsville, Mass., in 1882 and has been used in modified forms by the Whitin Machine Works and other manufacturers of spindles since that time. This spindle as shown in the original patent had no cushion but depended on a "light springy stem" secured to the lower end of the step, to give it the desired freedom. The modern Whitin spindle does not use the stem but the bolster and step are still made in one piece, resting on the bottom of the base but allowing freedom laterally.

Another important type of spindle is known as the McMullen type, for which five patents were issued on January 28, 1890, to James H. McMullan, then agent of the Saco-Water Power Machine Shop, now part of the Saco-Lowell Shops, Biddeford, Me. Although the original McMullan patents have no bolster, this feature is used on all McMullan spindles of the present day. The main features of this type of spindle is the loose step, Figure 47, which is free to find its own center, but is not free to revolve. The loose or floating lock step takes the vertical load and allows the spindle to revolve more freely about its center of gyration. The modern McMullan spindle has an additional cushion due to the film of oil between the loose step and the bolster.

The above inventions, made between 1857 and 1890, disclosed the main principle used in spindles at the present time. Improvements have been made in the process of manufacture, the quality of steel has been improved, the heat treatment is more scientific, the workmanship more accurate, but the mechanical principles are practically unchanged. In recent years the number of applications for spindle patents has greatly decreased.

Such inventions as the cap, the ring and traveler, and the separator were reduced to their simplest terms by the original inventors. For that reason comparatively little improvement has since been made. In the case of the spinning spindle, on the other hand, the problem is more complex and its development is the work of many men experimenting for many years.

Recent Developments.

Several new devices have been recently developed to make the spinning frame more nearly automatic. One is the automatic winding-down motion which operates when the bobbins are full, and which automatically winds down the ring rail to the doffing position before the frame is stopped.

Another device is called the ring rail controller. It is well established fact, that it is easier to spin on to a warp-wind bobbin which is near-

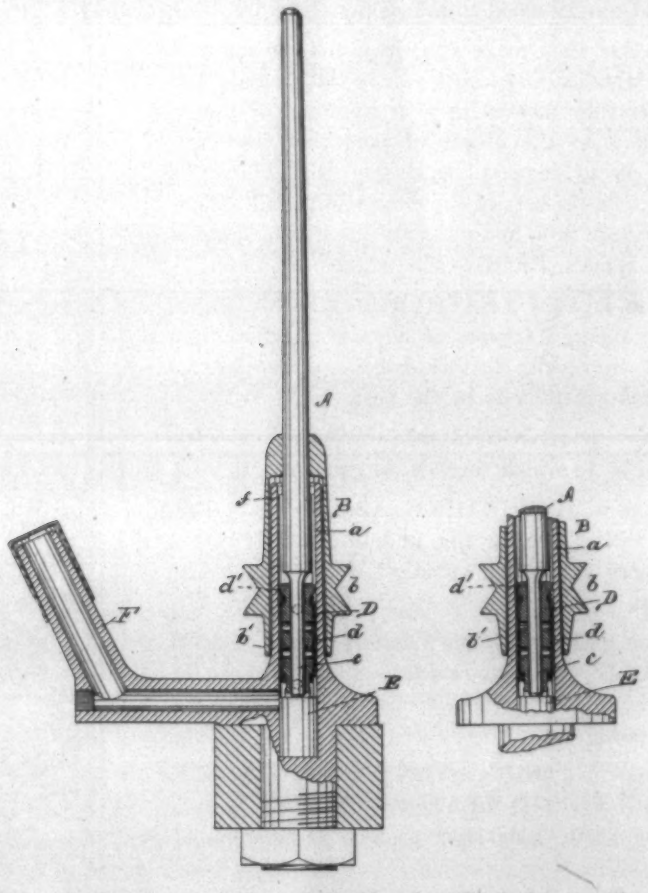

Fig. 45—Draper Spindle, 1882, Showing Packnigs to Keep Spindle in Place with an Elastic Support.

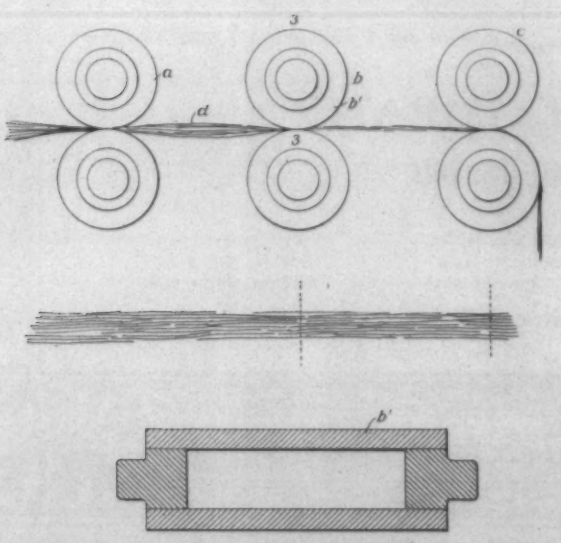

Fig. 48—Richards and Hinds Hollow Metallic Top Roll, 1912.

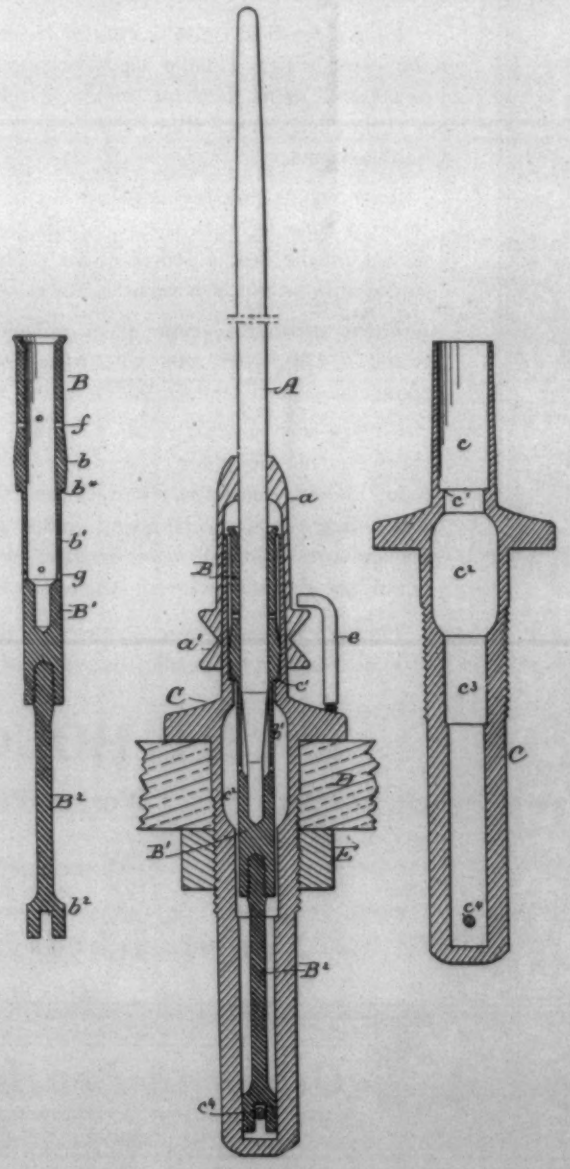

Fig. 46—Whitin Gravity Spindle, Patented by Taft, 1882

ly empty. The reason is that the pull of the yarn on a large diameter is nearly tangential tothe ring,while on a small diameter it is more nearly radial. In starting up a spinning frame on the small diameter, there are more breakdowns than when starting on a large diameter. The ring rail controller has been developed for use on filling wind spinning frames. It operates whenever the power of the spinning frame is shut off and automatically returns the ring rail to the "bottom change," or the nearest point where the diameter of the bobbin is at a maximum. When the frame is started again, the pull, being on the largest diameter, will result in the fewest breakages.

A number of attempts have been made to develop mechanical doffing equipment for spinning frames. This has been done more on cap and flier frames than on ring frames, because on the former the spinning elements must be removed and then replaced in doffing devices so far developed are more or less complicated and far from automatic.

The most important improvement in sight, as far as spinning is concerned, is long draft. The interest in this problem has been growing rapidly and many persons have been along these lines in England, France, Germany, Italy, Spain, Ewiterland, and in the United States, for a number of years. The various systems which have been developed have certain advantages and disadvantages, but one thing is certain: they do produce long draft—and some of them do so without lessening the quality of the product. Doubling or tripling the ordinary draft is not uncommon on a long-draft spinning frame, and some inventors claim to have increased the draft even further.

An important point in favor of most of the long-draft systems is that they are better able to handle the fibres of varying length which always exists in cotton.

It is well knoon that in the ordinary process of drafting with three pairs of rolls, all of them weighed, the distance between the axes of the first and second pair and between the axes of the second and third pair of rolls should be greater than the length of the longest fibre. The reason for this is that if two pairs of rolls running at progressively increasing speeds were to grasp the same fiber simutaneously, it would be ruptured. The drawing rolls are therefore set slightly farther apart than the length of the longest fibers. Under this condition the rolls fail to draw the short fibers uniformly. There is a tendency to leave them behind. They accumulate and come through in bunches.

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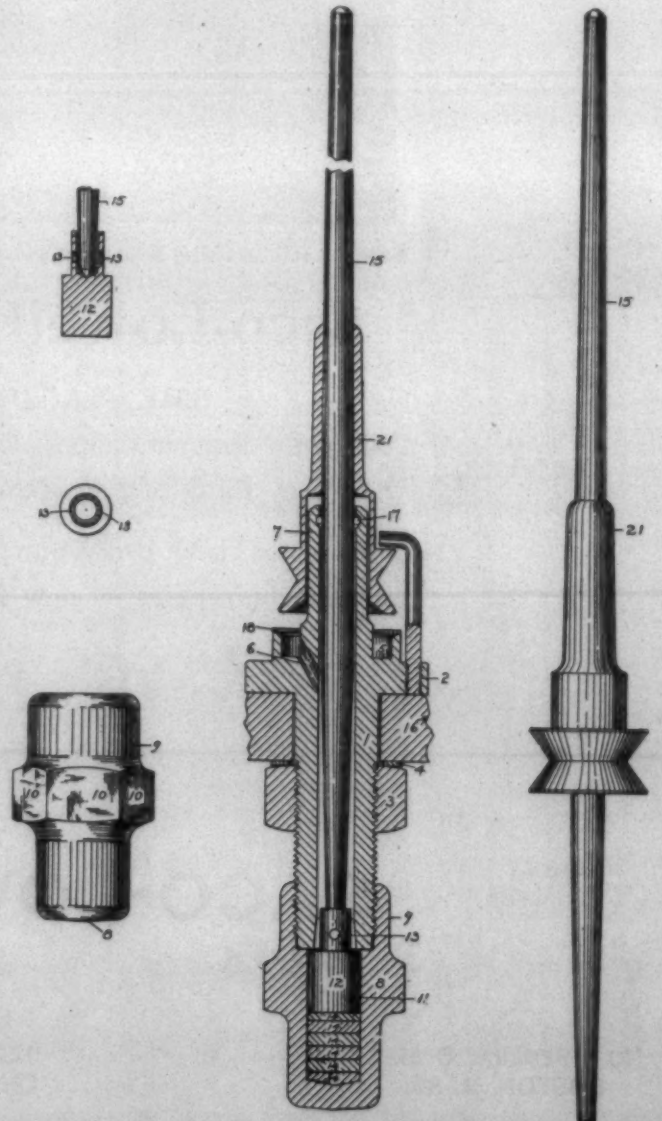

Fig. 47—McMullan Spindle, 1890, with Loose Lock Step, Free to Find Its Own Center but Not to Revolve.

Mercerized Waistings

By Dixie Weaver.

THERE has developed during comparatively recent years, or since the mercerization process has been permitted to be used, a class of fabrics of wide variety, but which have quite a number of prominent features in common. This class of fabrics contain those which are mercerized in the piece in the filling direction, and these materials are used extensively and for women's waistings and dresses, for men's shirtings and for various other purposes which creates them a large field for sale. These cloths are produced in plain weave and also with dobby and jacquard figures, and the results obtained appear to many consumers to be comparable to some silk fabrics, in fact they are quite often sold as such, for the lustre obtained through such methods is permanent.

Since the introduction of fast colors which are able to stand the bleaching process there has been a greater opportunity for variety than there was earlier, and it is probable that the sale of such fabrics has hurt the sale of the older style madras shirtings to quite an appreciable extent, for shirt makers can thus purchase their cloth and convert it themselves, thereby saving quite large amounts on certain lines. There has been some criticism regarding the wear of many of these new fabrics, it being claimed that they do not wear as well as the older lines and that mercerization hurts the cloth quality, but this is not true.

The trouble has been when comparing the mercerized fabric that it has not been so heavy in weight or produced of such coarse yarns as the earlier shirting fabrics, and, naturally, would not stand as much hard wear. Of course, the soft twist applied to the filling yarn does render the mercerized fabric a little bit less durable, but not enough to allow any large criticism, especially when similar weights of fabrics are considered.

The newer fabrics are sold largely because of their improved appearance, and because they offer opportunities for the use of fancy weaves which the others do not, and because they can be sold at a reasonable price which never could be noted on the older style of goods. Not only does such a fabric offer the above opportunity, so far as the weave is concerned, but it also allows yarns of fine sizes to be handled at a comparatively low cost, yarns which were very seldom handled at all in the earlier fabrics for the same purposes, and besides when they are handled, it was at prohibitive prices, so far as any large scale of cloth was concerned. Thus it will be seen that competition has developed quite extensively between madras and mercerized shirtings but only because the sale of the latter eliminates some of the opportunities for the sale of the former, and not because the fabrics as sold are very similar is appearance, because they usually are not. It is quite true that mercerized waistings and similar fabric have often been purchased in place of silk material, and for this reason, they may be said to offer a certain amount of competition to such lines.

One fact worth noting is that retailers in general have not as yet shown the variety or the adaptability of such material for comparatively few lines have been purchasable by them up to the present time, and the fabrics which they have obtained in many cases have been styles of which cutters-up bought too heavily and disposed of at second hand. For this reason, the future possibilities of such cloths have not been tried out extensively. Last year saw a large increase in the use of such cloths and the coming year will witness a still greater one. But that buyers have recognized the situation is seen from the large purchases which have been made recently from mills which are able to produce these constructions in fancy weaves.

In a general way madras shirtings are made from bleached yarn, and many of them have a somewhat higher warp count than they do filling, although this variation is usually comparatively slight, while mrcerized fabrics are usually made from grey yarns. They also have a higher, or a radically higher, count in the filling than they do in a heavier size of yarn than the warp, the warp, and the filling is usually in many instances being about half as fine. This variation in cloth construction gives a much different cloth when produced and one which is radically different when finished. Besides, the fillings in madras shirtings, which are made from bleached yarns, are comparatively as hard twisted as the warp, so that they can be handled successfully, while for the fabric which is to be mercerized, the filling has a much lower standard of twist, this standard being often less than three times the square root of the yarn size.

Another feature worth noting is that a large number of the mercerized fabrics are made from combed yarns, while the earlier fabrics were and are made largely from carded stock, which gives a cloth that not only is not likely to be so strong but will not be comparable in appearance. Not only does the better yarn used tend to make a more even fabric, but the mercerized cloths, due to the various processees of finishing, lose entirely the reed marks which often make bleached and dyed yarn fabrics very objectionable, but which cannot be eliminated excepting at a cost which is not desirable. Certain mercerized fabrics are made with carded warp and combed filling, while there are some which are made wholly from carded stock, but the majority of such fabrics, especially those made from medium and fine yarns, are manufactured from combed mater-

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Practical Discussions By Practical Men

Crimp

Editor:

Please allow me to ask the following questions in your quiz section. How may I increase the crimp in the filling in the following constructed goods? Cloth 60 in. wide, made of 10½ warp, 10½ filling, count 30x30. I now have a crimp of 5.1 per cent. Can this be increased, and which is considered the best way? Crimp.

Leather for Rolls.

Editor:

Please allow me to ask the following question in your quiz section. What is the best cloth and and sheep skin to be used for covering draft rolls?

In my opinion Dewey's shep gray cloth and Winslow's light special sheep skin are the best.

I will be obliged if some one can give me the names of the better grades. The rolls I am covering have a four and one quarter inch boss, and one what is known as the double boss roll. Roll Cover.

Slasher Cloth.

Editor:

I find that some mills use all wool slasher cloths and that others use a slasher cloth made with a cotton warp and wool filling. Any information you may be able to give me as to which cloth is preferable will be appreciated. Slasher.

Breaking Strength.

Editor:

We thank you very much for your letter of May 4th, giving us your idea as to the difference in waste between 13-16 to 7-8 cotton and cotton from the same section but staple 7-8 to inch, and are going to ask another favor of you in this line.

Will you please advise your idea as to the relative breaking strength based on 40 yards 14s single yarn, one made from middling cotton 13-16 to 7-8, the other made of middling cotton from the same section 7-8 to inch.

We assure you that we shall papreciate this very much.

Miss.

Yarn Tests.

Editor:

I have been running a spinning room for many years, but have never made yarn tests. I would like information from other spinners as to the qualities for which I should test my yarns and how I should make these tests.

Old Timer.

Irregular Shaped Bobbins.

Editor:

Some of my spinning frames are building the bobbins, as they fill up, too large at either the top or the bottom. What is the cause of this irregularity? I would like to have a number of answers to this question.

Answer to Captain A.

Editor:

Regarding weaver's knots. This is a very interesting new question which has been raised by Captain A. We will call the bare yarn size number 100s for convenience. When two ends of number 100s yarn are tied together into a weaver's knot the distance across the larger part of the knot increases to 3½ times that of the original size of the yarn or the equivalent of number 28 57-100 yarn. If two ends of number 100s yarn are tied into a square knot, the distance across the larger part of this knot becomes 4½ times the original size of the yarn or 22 22-100. But if this same yarn be tied together into a regular spooler's knot, the greater distance across this knot becomes 5 times the size of number 100s yarn or number 20s yarn. Therefore it can be seen that the difference between a weaver's knot, and a spooler's knot, as tied by hand or machine, is 1½ times the size of the yarn. In other words the diameter of number 100s yarn is 1-290 of an inch in diameter. But, when tied into a weaver's knot (two ends together) the greatest diameter will become 1-154 of an inch in diameter. When tied into a square knot the greatest diameter increase to 1-136. But when tied as a spooler's knot the diameter jumps to 1-129.

Analylitical.

Answer to "Spinner."

Editor:

Nobody has yet found out how fine the best of cottons can be spun. But there is, of course a limit. For example no less than two (2) fibres could be pieced out into a strand of yarn.

At the London Exposition of 1875, yarn spun from cotton was shown which was number 2150. The strand of this was made up of only four fibres and probably this is the limit. The finest yarn ever woven is said to be number 540s single and num-

ber 670s 2-ply. Number 800 yarn has been skeined, and in England it is stated that yarns have been offered as marketable of fram Nos. 300 to 600s. Textile Student.

Type of Mill Building.

Editor:

In planning a new mill, what type of building is best? It is best to use one-story building and should it have a saw-tooth roof, monitor roof, or side windows only? Or would it be better to use a two, three or four story building? Cai.

Answer to Night Run.

Editor:

Night work is not difficult when handled prudently. In the first place the night work should remain in charge of the day workers. The section men and second hands should be selected and placed in charge by the day time overseers. It is unncessary to have night overseers as the day time overseers remain in charge. But the leading mills operating nights usually have a competent general night superintendent to represent the management. He represents the day superintendent and the day overseers, and he sees to it that the work as laid out by all concerned is carried out in that way. He has general charge of the plant at night. If the power and lights fail to function, or accidents should take place he directs the proceedings. In other words, he relieves the day men from feeling obliged to work overtime and carrying an over-load.

In the morning he reports in writing anything special which the overseers would like to know and should know. He reports hte same things to the management.

Mills operating nights in this way are very successful. Some have been running nights in this way for years. N. C.

Answer to Night Work.

Editor:

In order to start a mill up at night the best method is to get a superintendent and let him organize his forces. He should be a man who has worked at night and a man who has some knowlege of all departments of a mill and by all means a man who can control his temper, and knows how to talk to people, with good common horse sense. The most important thing is starting right.

You should not allow any smoking during work hours nor allow any one to sleep during work hours. In other words everybody on the job, from starting time till stoping time. Requiring quantity and quality.

The writer has had 6 years experience on night running, my present mill most 4 years. If you get started right you will not have any trouble and will make money. Night hands can do just as much as day hands can do, and will if you will give them the same consideration, as you do the day forces.

Trusting this will be of value to you. Nite Timer.

Letter From a Yarn Spinner

Editor Bulletin:—

Fabric and yarn buyers are now professing to see 20 cents cotton in the very near future, and many say they will wait until cotton drops to that level before placing further orders with the mills.

Every mill man knows his orders are now on the basis of 20 cents cotton, although it is possible for him to purchase the staple much if any under 25 cents F.O.B. his mill.

It is therefore unreasonable to expect mills to sell at less than today's prices, even though cotton should ultimately decline to 20 cents.

What our mills need today is cheaper cotton, holding their prices at present levels.

A drop in cotton should benefit our manufacturers, and the buyers has no right to expect any lower prices than present quotations, all of which are below replacement costs, and show the mills actual losses an every pound of goods produced.

We have all operated at losses so long that we need cheaper raw material to save us from utter ruin. Therefore, should cotton decline, let the cotton manufacturer reap the benefit, and not weaken in his prices. We mill men should have the decline, and not pass it on to the buyer, dealer and speculator by lowering our prices a cent per pound every time July or October futures decline 40 to 50 points.

The buyers are all short of merchandise and yarns. They will have to come into the market and pay our prices, if we will all sit steady in the boat, and not weaken.

Southern Spinner.

Effect of Twist on Yarn.

The Bureau of Standards wishes to announce the publication of Technologic Paper 278, "Effect of Twist on the Physical Properties of a Number 7s Yarn", by F. R. McGowan, Charles W. Schoffstall, and A. A. Mercier.

Official distribution is restricted to public service libraries, technical journals, and cooperating experts who cooperate in the work. Others may purchase the publications from the Superintendent of Documents, Government Printing Office, Washington, D. C., for 10 cents.

This investigation was made to determine the most suitable twist for manufacturing the yarn to be used in the Pima post office bag investigation. Data were obtained on the relation of the twist to the breaking strength, diameter of the yarn, yarn count, contraction, and angle of twist. While these data were not sufficiently extensive to atempt to fix definite formula for these relations, it is thought that the tabular and graphical relation studies in this investigation will be useful for the cotton manufacturers.

Meeting of Texas Textile Association

Featured by an unusually large attendance, the discussion of practical questions on mill operation and several interesting addresses, the tenth annual meeting of the Texas Textile Association, held in McKinney, Texas., May 8th and 9th proved the most successful in the history of the organization. Several entertainment features added to the occasion and the interest shown in the meeting reflected the progress than Texas in making in textile development.

The election of new officers of the association resulted as follows: President; G. C. Dilling, superintendent of the Brazos Valley Cotton Mills, West Texas; flirst vice-president, J. O. Wilson, superintendent the Guadaloupe Valley Mills, Cuero; second vice-president, H. D. Edmisston, superintendent of the Dennison Cotton Mills, Dennsion Cotton Mills Dennison; secretary and treasuser, Dan H. Poole, superintendent of the Sherman Cotton Mills.

Members and visitors at the meeting registered on the afternoon of the 8th at the offices of the Texas Cotton Mills, and then made an inspeciton trip trought the plant. At 5:30 they went for a motor drive over the city and at 6:30 attended a Dutch luncheon at the City Coliseum. Music at the luncheon was furnished by the Texas Cotton Mill Band. The address of welcome was made by Mayor Perkins of McKinney, and the response by R. W. Phillips, associate editor of Cotton.

The evening program was concluded with a round table discussion of technical problems.

On Saturday morning, the first session was a business meeting at the Chamber of Commerce, featured by an address by Miss Fay Miller, welfare supervisor of the Sherman Manufacturing Company, Sherman, Texas. Miss Miller presented an unusually interesting paper and was heard with close attention.

At 12:30, the final business session was held at which new officers were elected, as given above. It was voted to hold the next meeting at Dennison, Texas, in October.

Among those attending the meeting were:

Adams, T. A., Manager, Brenham, Texas.
Ard, J. N., Weaver, Sherman, Tex.
Baucoun, Chas., Loom Fixer, Dallas, Tex.
Brewer, John, Loom Fixer, Dallas, Tex.
Bishop, Herbert, Cotton, Dallas Tex.
Booth, H. O., Cloth Room, McKinney, Tex.
Burke, A., Yard Foreman, Dennison, Tex.
Brady, C. B., Carder, Sherman Tex.
Bolton, L. L., Spinner, Lovefield, Dallas, Tex.
Brewer, G. L., Master Mechanic, Love Field, Dallas, Tex.
Bagley, J. B., Textile Engineering Dept., A. & M., College Station, Tex.
Braley, J. B., Spinner, Itasca, Tex.
Burdine, W. E., Weaver, Itasca, Tex.
Burden, W. M., Spinner, Denison, Tex.
Buron, H. A., Carder, Bonham, Tex.
Burrus, Will, Spinner Dallas, Tex.
Banta, A. E., Salesman, Dallas, Tex.
Brooks, L. C., Salesman, Dallas, Tex.
Brown, J. M., Spinner, Forth Worth, Tex.
Bartholomew, E., Master Mechanic, McKinney, Tex.
Bastick, E., Weaver, Love Field, Dallas, Texas.
Bread, R. J., Asst. Mgr., Love Field, Dallas, Tex.
Chestnut, C. L., Spinner, Dallas, Tex.
Culberson, Dink, Office, McKinney, Tex.
Crosby, Jno., Weaver, Waxahachie, Tex.
Cook, H. L., Salesman, Dallas, Tex.
Campbell, L. W., Salesman, Atlanta, Ga.
Clement, A. B., Weaver, Waxahachie, Tex.
Crasley, R. L., Spinning Overseer, Waxahachie, Tex.
Chappell, J. T., Weaver, Dallas, Tex.
Cosby, J. C., Supt., McKinney, Tex.
Cox, A. M., Asst. Supt., McKinney, Tex.
Delatta, Theo., Loom Fixer, McKinney, Tex.
Darden, W. A., Texas Power & Light Co., Dallas, Tex.
Dilling, G .C., Supt., West Texas.
Edmiston, H. G., Supt., Dennison, Tex.
Ellison, R. L., Carder, Waxahachie, Tex.
Estes, R. C., Capitalist, Corsicana, Tex.
Ford, M. C., Spinner, Dallas, Tex.
Gibson, W. H., Supt., Waxahachie, Tex.
Henry, M. B., Spinner, Sherman, Tex.
Hughes, Robt., Hardwicke Etta., Sherman, Tex.
Hargrave, Ben G., Weaver, Denison, Tex.
Holcombe, L. F., Carder, Love Field, Dallas, Texas.
Hollingsworth, W. B., Carder, Denison, Tex.
Jones, E. T., Spinner, Sherman, Tex.
Lance, M. T., Supt., Hillsboro, Tex.
Lord, C. L., Spinning, Waco, Tex.
Long, P. J., Weaver, Bonham, Tex.
Leeik, M. D., Carder, Forth Worth, Tex.
Miller, Miss, Fay, Welfare Dept., Sherman, Tex.
Massingill, M. T., Overseer Dyeing, McKinney, Tex.
Mooney, J. T., Carder, McKinney, Tex.
Moore, I. G., Supt., Brenham, Tex.
Morton, Sam A., Carder, Dallas, Tex.
Megarity, C. H., Texas Roller Covering Works, Waco, Tex.
McBride, L. B., Spinner, Bonham, Tex.
Nelson, J. L., Weaver, McKinney, Tex.
Neely, M. J., Cloth Room, Fort Worth, Tex.
Pittman, W. P., Utility, McKinney, Tex.
Poole, Dan H., Supt., Sherman, Tex.
Phillips, R. W., Associate Editor, Cotton, Atlanta, Ga.
Phillips, J. L., Southern Textile Bulletin, Charlotte, N. C.
Reden, Otto, Carder, Love Field, Dallas, Tex.
Ross, N. B., Master Mechanic, Waco, Tex.

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Meeting of Cotton Manufacturers' Association of Georgia

As a preliminary to their annual meeting on Tuesday, the Cotton Manufacturers' Association of Georgia held a session at the Biltmore Hotel in Atlanta on Monday night at 8:30 o'clock.

At that session such questions as the Elimination of Child Labor, Cotton Rules, Compulsory Education and other matters were discussed informally and differences ironed so that the regular session on Tuesday could be conducted with less loss of time.

Tuesday Morning.

On Tuesday morning the session was called to order by President Geo. S. Harris at 10 o'clock and after a prayer by a local minister the address of welcome was delivered by Mayor Sims of Atlanta. The response was made in a very witty and eloquent manner by J. H. Mayes, manager of the Fitzgerald Cotton Mills who was introduced as the "Mayor of Fitzgerald."

President's Address

President Harris made a very effective address which showed that he had given much thought to the problems which confront the industry. His address follows:

Just a year ago, you honored me with the election to the presidency of the Cotton Manufacturers Association of my native State, and from that moment, I have felt a peculiar responsibility for the welfare of every cotton mill in this State. Georgia means more to me today than ever before. I am proud of our State, and proud of our—the first industry in the State. This Southeastern section of the country, in my opinion, is destined to show a growth unequaled by any other group of States, and Georgia is geographically located to enjoy the full benefit of this development.

In my opinion, the next twenty years will see many changes both industrially and agriculturally, and whether or not our mills of today suffer or prosper with this great development depends directly on the breadth of vision, and the foresight of those charged with the management of these mills.

When I started as a hopper boy in a little yarn mill at Cedartown only a few years ago, there were less than five million spindles in the entire South. I have seen this figure grow to more than seventeen million in but a few more than as many years. This meeting presents the spectacle today of a man in boy's clothing, and we have clearly reached a stage in our growth where we should carefully check our present status and attempt to visualize our future. As our Association is at this time celebrating its twenty-fifth birthday, there are two questions we should ask ourselves, and attempt to find the answers. First, how far have we travelled, and second, where are we going from here? By this, I mean what have we accomplished in the past and in what way can we make our association of more value in the future.

I want us at this meeting to keep our eyes on the future, and put this association to work for the general good of both stockholders and workers of the Georgia Cotton Mills.

Let us give our association the broadest interpretation, and let every member think of his mill, as only a unit in the Cotton Manufacturers Association of Georgia.

I think I have the distinction of having served you as your President through one of the most trying, if not the hardest year in your history, from the standpoint of profitable operation. In way of review, we, at this time last year had facing us an impossible cotton situation. Two abnormally short crops had created a future market, the equal of which we had never seen before. Old crop cotton varied during the spring and early summer from 25 cents to 35 cents, and bounced up and down like a rubber ball. Not only did new crop futures rule from three to six cents below May and July on the board, but by early May, cloth prices were based on the price of the new crop. You were asked to contract to deliver cloth in July, but the price of the goods demanded that you spin cotton that was yet in the boll. Even at low prices, it was impossible to put over sizable business, and after accumulating stocks, mills started a general curtailing movement, which reached its peak by early July. In fact, mills in our State curtailed production that had never before altered their running schedules.

It appears that some mills were able to steer ship over the dam, without shipping large quantities of water, but the general average was operating at losses, and in some cases they were very heavy. In line with the time honored custom of Southern Mills, nearly everybody continued to produce, holding goods in storage for a better and more profitable goods market until forced to stop, and finally sold these stocks at prices that would show a moderate profit with cost based on cotton at twenty two cents or lower. Any mill that passed through this period without taking losses either did some close manipulating on the board, taking tremendous market risks, or else they produced their cloth from raw stock other than cotton. The clouds began to clear in September, but mill stocks were a weight on the market well into January. We have had a period of not more than three months out of

the past twelve when it was possible to sell goods at a profit on current cotton.

Furthermore, we have never felt so forcibly the fixed policy of hand to mouth buying that has become so very general during the past few years. No one seems to be willing to buy beyond "next week" and when the sale for the one bale is completed, shipment must be made yesterday. This new problem so general in cotton textiles, as well as some other important commodities, concerns me as much as anything else, as I fear the disease is becoming chronic. We are called upon to finance cotton with cash payment the day it is shipped, yet, we must not only carry our customers' stocks but must ship only as he has immediate need, and then, often give long dating at prices hardly over cost. I have tried hard to find the answer to all of this, and always come back to the lack of any semblance of co-operation or concerted effort to correct an evil that is choking the very life of some of our mills.

It is true that some new conditions have developed in the consumption side of cotton textiles, and in fact, the figures indicate a material reduction in the per capita consumption of cotton cloth in this country. It has been estimated that consumption has decreased from 66 yards to 55 yards. If this is true, it is equivalent to the production of 16-2-3 per cent of our spindles—stratling if true. This appears to be due, in a large way, to change in styles of women's clothing, which today contain among some classes no cotton, and in others, a much reduced quantity, and a reduction in the total buying due largely to the enormous amount of money passing from pay checks into automobiles in an increasing quantity each year.

There is no indication in the data available that there has been an over expansion in cotton textiles either within the United States or in the industry as a whole, yet, you are not able to merchandise your production continually in pre-war volume at the advances made necessary by the average post-war cost of cotton. There is very clear evidence that some parts of the world's cotton mill equipment must remain idle or else manufacture goods from artificial silk or other fibres until such time when the production of cotton and consumption of goods can be brought back to the requirements of the world's spindles.

For some ten or fifteen years before the European war, the world was increasing its cotton spinning equipment with great rapidity, and during these years we brought into commission throughout the Southern States millions of new spindles, a very large part of which was started on the same general line of fabrics. Outside of the United States, and the Far East, there has been practically no addition made to the world's spinning equipment since 1913. The actual increase in the world's cotton spinning spindles including this country, between 1913 and 1924 was nine per cent, while the world population increased in almost the same ratio. In this country, during the war, and post-war years, our cotton spinning industry has increased by about eighteen per cent, while the increase in population has been sixteen per cent. Meanwhile, there has been a reduction in per capita consumption of cotton cloth. The increase in the world spinning capacity outside of the United States since 1913 in confined almost entirely to the addition of seven million spindles in the Far East, bringing China and Japan now to about sixteen million spindles, or very nearly equal to the capacity of our Southern States. On the other hand the working hours generally throughout Europe have been reduced by law to an extent fully equally the total additions in the Orient.

I mention these facts and figures taken from recent publication by National Bank and Commerce to indicate that from the standpoint of capacity, the industry is sound, but readjustments are necessary before our mills will be able to continuously merchandise our full production on a profitable basis. It is going to be necessary to watch carefully market demands and adjust production accordingly. So long as mills continue to stock goods in anticipation of market requirements, you may expect a continuation of this hand to mouth buying policy, and a heavy goods market with very close operating margins, if not losses.

We are quite certain that the total mill stocks are low today, as compared with six months ago, but we have no means of knowing what lines are stocked. With no co-operation as at present, Mill "A", finding no sale for its product, and reluctant to reduce running schedule in advance of other mills must either stock goods in anticipation of market requirements, or change his looms to something he thinks is safer to stock than his own. Same old story of a jackass trying to reach the other pasture, with the result that Mill "A" finds his mill out of balance with a cost higher than his competitor, and by the time he can bring in his new production, it goes to warehouse along with the goods he had been making, and for which he is better equipped to produce. Until we get by this readjustment period. we should be more careful with reference to "sepculative production". Get away from the ideas of the man who wants to kill his competitor.

We find today two schools of thought, and I will attempt to picture the two opposing forces. One side is illustrated in a conversation I recently had in New York with an official of a large mill. In reply to my question as to how he was progressing, he stated about as follows; "I am running full day and night, and selling my production at cost or lower." The natural question was why this large production. To this he replied: "We are going to kill our competitor. We are going to either force him out of business, or drive him into other lines.

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Need of Market Data

IN a letter to David Clark, editor of the Southern Textile Bulletin, John W. Arrington, president of the Union Bleachery, Greenville, S. C., points out the need of statistics that would serve as a guide in regulating production of cotton goods. He suggests that the collecting of such information be handled through an organization of the mill men rather than through the Department of Commerce at Washington.

Mr. Arrington's letter follows:

"I have read with interest the leading editorial in your issue of this week, containing as it does your endorsement of a recent suggestion of mine through your publication that the mill men should arrange in some way to exchange with each other a great many items of statistics.

"You are now suggesting that this might be done through the U. S. Department of Commerce. Would it not be far better and be carried out in much more detail than the department would be willing to bother with if it were handled through one person who might be known as secretary of the organization of mill men? This organization might utilize the machinery of the present American Association, presided over so capably by Mr. Adams; or, if that organization were unwilling to commit itself to such a plan, a separate organization for this sole purpose might be created.

"I fully agree with the statement you quoted in this editorial from my good friend, 'Gus' Smith, as to what appears to be the selfishness displayed by mill men. Possibly a better word than selfishness might be suspicion; that in attempting to get together in the way I am suggesting some might not frankly and freely exchange the desired information.

"I have seen for some years the good effect in the finishing industry of such exchange of statistical information. The finishing industry has carefully investigated the legality of such exchange of information and has found it to be within the law.

"You did wonderful work in fighting the Twentieth Amendment. I take the liberty of suggesting that you now head a movement looking to the bringing about of this condition of full interchange of statistical information. If you see fit to do that I suggest still further that you try to arrange to appear before the Georgia Manufacturers at their meeting this week with a view to getting their endorsement of the idea, later appearing early in July before the North Carolina and South Carolina Associations at their annual meetings. Such appearance I would think to be most effective should include not merely a vive voce vote of endorsement but actual signatures of mill men to the effect that they would take part in such a movement.

"If you can see fit to put this through on the lines I am suggesting, or on some other and better line that you may map out, I am sure you will meet with your usual success."

More Economy

TO the further confusion of the man who tells the little story about people not buying cotton goods because of economies made necessary by the purchase of automobiles, we cite the fact that March production of cigarettes was 6,271,453,255 against 5,269,726,747 in February.

Apparently somebody has money enough to buy cigarettes.

Modern Women Like a House

WHILE discussing a bill to prevent the use of the term "flapper" by Florida newspapers one member said that modern women were like a house, "painted in front, shingled in the back and empty in the attic."

The quarrel of the cotton manufacturers with the modern women is that she wears too few clothes, or, at least, too few cotton clothes.

Mills Curtailing

THERE is evidence that the cotton mills of the South do not intend to accumulate goods and yarns very far beyond orders and that curtailment will be more prompt and effective than ever before.

We are hearing daily of mills that are cutting off their night production and of many others that have gone on short time or will do so if they can not get orders.

It will be far fairer to the operatives to shut down a few weeks or a month now than to accumulate goods and yarns and to have to bear the burden of such stocks during the next twelve months.

There are a number of mills that are now on the ragged edge, financially speaking, and the manager who accumulates goods may find himself in the same fix before he has been able to dispose of such stocks.

Drastic curtailment to prevent accumulation of goods and yarns can bring prosperity and profits back to the industry.

What Fabrics?

The following very interesting letter has been sent by Captain E. Lang, Southern representative of the U. S. Oil Company, to a number of his mill friends.

Captain Lang had a long experience as a cotton manufacturer, both in England and in this country, and his experiences show that there have been other trying times in the cotton manufacturing industry.

"An old cotton mill friend of mine asked me the other day, "what fabric can I put in my looms that will show me a margin of profit?" He knew I had been up against it, so my reply was, "keep within a range of fabrics for which your machinery was equipped to make." Fashions, style and requirements are constantly changing, so success is not always a question of production and management. If my personal experience is of any help to you, here it is. When I was running the Lanett Cotton Mills, I was terribly worried at the number of different fabrics I was asked to make. Later on when I began to solicit business for my own mill, I had much more respect for the troubles of the selling agents.

"I thought I had solved the problem of running a small mill and owning a nice piece of property in West Point, Ga., I ordered some looms and began making lap robes, which allowed a good margin. Afterwards I added carding, spinning, dyeing and even began to make our own designs and cut our own jacquard cards, so we were getting the profits on every operation. The increasing use of automobiles not only cut down the demand for lap robes, but also ruined the buggy trade.

"To use our equipment I tried double width fringed towels, then the Cannon Mills started up with their more serviceable product of hemmed towels. That cut out our towel end. Next we tried portieres and Jacquard piece goods, but Philadelphia was too strong and well established. Next we tried making cotton hammocks of the most approved designs and colors. Then the catalogue houses began to push porch swings, which seriously affected cotton hammocks. Then at great expense we began the dyed horse netting, but the demand was limited and a preference shown for the white nets.

"These constant changes were very costly and put us in a hole the same as many other firms have experienced.

"Another example we recently read that a corset manufacturer handed over his entire plant to the employees and gave them a hundred thousand dollars to operate. Fashion seems to have ruled out corsets. The same is true with hair nets hair-pins and hat pins, and next followed a reduction in web manufacturing for women began to roll their stockings.

"An old friend of mine in England wrote me the other day (he had been associated with one of the largest dry goods firms in Manchester for thirty years) saying that there has been quite a change since we were boys Women dress entirely different and buy largely of "Ready-to-Wear," which accounts for the falling off in the demand for calicoes, linens, sheetings, etc. The latter now being made up in pair of sheets, pillow cases, etc. In quilts, bed-spreads, towels and household linens, the trade keeps good. Again, the old Victorian idea of a fine home has given way to bungalows, automobiles, movies and pleasure generally.

"It will be seen that what is happening in England is duplicated in other countries, so the man or firm that can invent or anticipate a change in fashion or style and be ready, they are the ones to secure the big margin of profits.

"I could go on giving instances of events occuring but I have just penned these few lines, hoping that that it may console some worried mill man and cause him to work out new constructions of fabrics and get the Selling Agents hustling.

"For spinning there appears to be a great demand for mixed mercerized yarns, silks, linens and cotton, but no doubt you are following the demand for these yarns."

Personal News

G. R. Matthews has resigned as overseer weaving at the Highland Park Mills, Rock Hill, S. C.

T. H. Woods has become overseer of the cloth room at the Stonewall Cotton Mills, Stonewall, Miss.

J. Y. Moore has resigned as overseer weaving at the Buffalo plant of the Union-Buffalo Mills, Buffalo, S. C.

J. V. Tarpley has returned to his former position as overseer of carding at the Gambrill-Melville Mills, Bessemer City, N. C.

W. J. Hodge, of the Globe Mill, Gaffney, S. C., is now overseer of the cloth room at the Gambrill-Melville Mills, Bessemer City, N. C.

Joseph Outen, of the Manetta Mills, Lando, S. C., is now overseer weaving at the Highland Park Mills, Rock Hill, S. C.

C. E. Humphrey has resigned as overseer weaving at the Red Springs Cotton Mills, Red Springs, N. C., and is now located at Monroe, N. C.

W. L. Stephens, formerly overseer of weaving at the Avondale Mills, Alexander City, Ala., has become overseer of the cloth room at the Arkwright Mills, Spartanburg, S. C.

J. C. Keller has resigned as night superintendent of the Williamston Mill, Williamston, S. C., and accepted a position with the Park Yarn Mills, Kings Mountain, N. C.

J. O. Clark, formerly of the Watts Mills, Laurens, S. C., is now overseer slashing, warping and winding and designer at the Aragon-Baldwin Mills, Whitmire, S. C.

C. A. May has been promoted from second hand on the day run to night overseer of weaving at the Aragon-Baldwin Mills, Whitmire, S. C.

J. L. Wofford, of the Lydia Mills, Clinton, S. C., has become overseer of weaving at the Buffalo plant of the Union-Buffalo Mills, Buffalo, S. C.

Ralph Powell, who has been in charge of the Chicago sales office of the Powell Knitting Company, will be manager of the Model Mill, Spartanburg, S. C., which was recently purchased by his company.

J. D. Miller has resigned as pattern chain builder at the Mayflower plant of the Cramerton Mills, Cramerton, N. C., to become general second hand in spinning at the Amazon Mills, Thomasville, N. C.

T. E. Young has resigned as superintendent of the Riverside Manufacturing Company, Pendleton, S. C., to become overseer spinning, spooling and warping at the Walhalla plant, Victor-Monaghan Company, Walhalla, S. C.

R. L. Griffin has resigned as overseer cloth room at the Stonewall Cotton Mills, Stonewall, Miss., and accepted a position at Cordova, Ala.

B. H. Lowe, of Burlington, N. C., has accepted the position of overseer of weaving at the Monarch Mills, Ottaray plant, Union, S. C.

V. C. Smith, formerly with the McLean Mills, Bessemer City, N. C., has returned to his former position as overseer weaving at the Gambrill-Melville Mills No. 1, of the same place.

John E. Gettys, vice-president and general manager of the Victoria Cotton Mills, Rock Hill, S. C., has been elected president of the Community Hotel Corporation of Rock Hill.

Balfour Mills.

Balfour, N. C.

12, 500 spinning spindles.
268 fast speed looms.

W. E. Hammond	Supt.
W. T. Morton	Carder
W. T. Morton	Spinner
M. D. Leslie	Weaver
W. H. Walden	Cloth Room
C. R. Stagges	Master Mechanic

Barringer Manufacturing Co.

Rockwell, N. C.

9,484 spinning spindles.

A. O. Norris	Supt.
E. N. Haynes	Day Carder
J. E. Norris	Night Carder
R. L. Linger	Night Spinner
T. L. Linker	Night Spinner
Earnest Haynes	Master Mechanic

Wilson Cotton Mills Co.

Wilson, N. C.

6,240 spinning spindles.

Geo. F. Shipp	Supt.
J. B. Driver	Carder
R. S. Wooten	Spinner
D. W. Rose	Master Mechanic

Beaumont Manufacturing Co.

Spartanburg, S. C.

51,000 spinning spindles; 1,336 looms.

W. A. Black	Supt.
L. C. Martin	Carder
J. W. Sanders	Spinner
H. G. Smith	Weaver
J. B. Laughlin	Cloth Room
C. T. Moss	Master Mechanic

Caswell Cotton Mill.

Kinston, N. C.

16,224 spinning spindles.

N. B. Hill	Supt.
J. S. Hailey	Day Carder
J. F. Allen	Spinner
A. L. Dilworth	Night Carder
W. C. Phillips	Winder Room
W. D. Meadows	Yard Foreman
H. D. Leary	Master Mechanic

MILL NEWS ITEMS OF INTEREST

Martinsburg, W. Va.—It is reported that the Interwoven Mills will erect a plant here.

Cramerton, N. C.—It is reported that the Cramerton Mills will construct a new dyeing unit.

York, S. C.—The Cannon Manufacturing Company will erect an addition to their cloth room, 40x100 feet.

Griffin, Ga.—It is understood that a new hosiery mill will be erected here by J. W. Gresham, of the Gresham Lumber Company.

Luftin, Tex.—It is reported that the Planters and Merchants Mills, of New Braunfels, Texas, will erect a plant here.

Port Arthur, Tex.—The Chamber of Commerce, A. L. Burge, manager, is negotiating with outside parties to establish a mill here.

Ardmore, Okla.—The report that the officials of the Banning Cotton Mills, Banning, Ga., would erect a cotton mill here is erroneous.

Raleigh, N. C.—The State Prison is contemplating the establishment of a knitting mill to be operated by prison labor. Address George R. Pou, superintendent.

Statesville, N. C.—The Crescent Knitting Company has been incorporated by J. C. Fowler and J. H. Davis. The company has a capital of $100,000.

Fort Payne, Ala.—Plans for the additional story to the hosiery mill of W. B. Davis & Sons are being prepared by W. H. Sears, engineer, of Chattanooga, Tenn. The building will cost $18,000.

Cornelius, N. C.—The 160 new Draper looms recently purchased by the Cornelius Mills, as noted, have arrived and are now being installed. They replace old equipment.

Concord, N. C.—The Locke Cotton Mills Company has placed contract with the Bahnson Company, Winston-Salem, N. C., for humidifying equipment to be installed in tth weave room.

Chattanooga, Tenn.—The Davenport Hosiery Mills are erecting a two-story, reinforced, concrete construction building, 100x230 feet with provision for adding two more stories later, land cost $50,000; will be filled with knitting machines for manufacturing Humming Bird Hose; building will double present production; Lockwood, Greene & Co., Atlanta, Ga., architects and engineers; contracts for buildings will be let June 1.

Asheville, N. C.—It is understood that the contract for the construction of the plant of the Sayles Finishing Company will be let May 29. J. E. Sirrine & Co., Greenville, are the engineers.

Newnan, Ga.—The McIntosh Mills has placed contract with the Cocker Machine & Foundry Co., Gastonia, N. C., for direct pull electrical stop creel to work in connection with their linking waper.

Opelika, Ala. — Contract for the erection of 20 new bungalows in the mill village of the Opelika Manufacturing Company has been let to Batson Cook Company.

Durham, N. C.—The charter of Morven Mills has been amended to increase the capital stock from 2,000 shares to 4,000 shares and to change the par value from $100 per share to no assigned or par value.

Tellico Plains, Tenn.—The Tellico Cotton Mills, recently organized to build a cotton mill here, as previously noted, will erect standard mill construction building, 60x156 feet, to cost $12,000, will install weaving equipment to cost $50,000.

Durham, N. C.—Plans for the new mill to be built by the Yarborough Mills, as noted, will be drawn by T. C. Atwood, local engineer. The plans are expected to be ready in about ten days. The plant will manufacture novelty weaves.

Whitmire, S. C. — The improvements to the Glenn-Lowery plant of the Aragon-Baldwin Mills will include the installation of Barber-Colman spooler and warper, 200 new Draper looms and the building of 50 new houses of the most modern type, contract for which was recently let, as noted.

Hawkinsville, Ga.—Good progress is being made in the expansion work at the No. 2 plant of the Cochran Mills here. The capacity of the mill will be doubled, a new steam plant erected and the electric drive installed throughout. Automatic looms will be installed later. Contract for the new humidifying system was placed with the American Moistening Company. L. H. Beck is general superintendent of the mills here and at Cochran.

Kershaw, S. C.—Detailed information concerning the addition to the Kershaw Cotton Mills is as follows:

The plant now has 12,000 spindles and 13,000 will be added. The construction work will include a main mill building, opener room, warehouses and power house.

Contract for the building was let to T. C. Thompson Bros., of Charlotte. Contract for the 1250 k. w. turbine was let to the General Electric Company, contract for all motors to the Allis-Chalmers Manufacturing Company, contract for turbine, condenser and heater to the Elliott Company, Philadelphia, contract for spray system to Badger Sons Company, of Boston.

The Corlis engine now in use will be dispensed with and the mill electrified. Group drive will be employed throughout the whole mill except the spinning, which will have the four-frame drive.

Machinery contracts have been

placed as follows: Opening, picking and carding, Saco-Lowell Shops; spinning, tape drive, Fales & Jenks Machine Company; spooling, warping and slashing, Saco-Lowell Shops-Lowell Shops; looms, the Draper Corporation; finishing machinery, Curtis & Marble Machine Co.

Contract for a number of new houses in the village will be let later when the mill buildings are nearing completion.

Forecasts Textile Improvement

Providence, R. I.—The brightening outlook in textile circules, the unequaled opportunities for men with ideas and training in that industry and the meeting of the bogey of Southern and foreign competition with beauty and quality of fabric, were the points stressed by E. F. Walker, secretary-treasurer of the Rhode Island Textile Association, at the meeting of the Textile School of Design. Mr. Walker said:

"Business in the textile industry is picking up. Since 1921 it has not been at any time consistently good, but at present the majority of our cotton mills are running full time and, while there is some curtailment among the woolen and worsted mills, it is my belief that it is temporary and that business is due to pick up. General business throughout the country shows marked improvement and the textile industry will sooner or later feel the effects of an increase in available spending money which the American public is accumulating.

Aggressive Policy Necessary.

"In order to bring about a quicker return of healthy buying on the part of consumer and retailer, which is necessary for a normal business for Rhode Island manufacturers, an aggressive policy in merchandising and elimination of unnecessary manufacturing costs is absolute essential.

"There has never been a time when there were greater opportunities in the textile industry in Rhode Island and other textile centers for men with ideas and training. At no time in recent years has the industry needed more of the type repersented by the alumni of the Rhode Island School of Design. The firms locally who, during the recent depression, have been most successful in maintaining fairly steady operation have been those who most readily adapted themselves to changing conditions.

"They have mixed brains with their raw material. Ideas—all other things being equal—make a mill stand out in comparison with its competitors. A mill which pioneers in the manufacture of new and attractive fabrics, always has the jump on its competitors.

Attractive as Silk.

"Some of the wisest heads in the industry hav been emphazing for the past several years that, if cotton goods could be manufactured and sold on the same basis as silk, the bogey of Southern and foreign competition could be met and overcome. That is the job thatyou have before you. In your hands will be the business of the mills of the future. If you know more than your competitor, if you are a better manufacturer, if you have less waste, if you keep you overhead down and if you can design and weave better fabrics than he, you will have no competition to worry about.

"There are a number of people who always buy on the basis of price but by far the larger number of people buy where quality is considerd. There is an old adage current among advertising men that "The quality is remembered long after the price is forgotten."

"When I referred to cotton being manufactured and sold on the basis of silk, I meant that cotton should be made and sold on the basis of beauty of design, fabric and finish, and not on the ability of the mill to turn out so many yards of 60x60 every day.

Foreign Competition.

"A year and a half ago competition from British mills in the manufacture of cotton broarcloths and fine count fancies had commenced to be very heavy, and in 1924 imports into this country of this class of goods totaled more than 200,000,000 yards, or on amount equivalent to the entire annual production of a textile center of the size of New Bedford. While it seems at present as though tariff revision would be the only hope to curb this influx of foreign goods, still there are an increasing number of Rhode Island mills which have found ways and means of manufacturing similar fabrics and marketing them.

"Competition, particularly in the finer trades, but generally in all grades of woolens and worsteds, has made serious inroads in the business of our local manufacturers of woolens and worsteds. Due to lower standards of living, lower labor costs, etc., it is possible in many cases for British and other European mills to dump their fabrics in this country at a price not only ruinous to American manufacturers but at a small margin of profit to themselves.

"The American public, regrettably, has acquired that notion that 'imported' on a fabric implies a quality not attainable to fact. Is it conceivable to you that a weaver in England, France or Belgium can produce better fabrics than a weaver in an up-todate American mill with up-to-date American machinery?

Should Educate Consumer.

"Just as ways and means have been found and are being found to meet the competition of Southern and foreign mills in cotton goods, so means are being found by manufacturers of woolens and worsteds to meet competition from abroad.

"A very strong growing tendency to emphasize original American fabrics as the equal of those manufactured anywhere in the world is being displayed by retailer throughout the country. The remedy for this current belief in the alleged superiority of foreign fabrics is simple. It is merely to educate the public through publicity, including the demonstration of the fabrics that ogods of a quality equal to and even superior to those made elsewhere are manufacturer here in Rhode Island."

Textile Social Workers Meet

The seventh annual convention of the Southern Textile Social Service association will be held at Charlotte June 11 to 13, with pastors of churches in textile communities, teachers of mill schools, nurses, Young Men Christian association secretaries, doctors community workers and mill officials in attendance. The sessions will be held at Queens college, and it is expected that approximately practically all 200 persons, representing practically all the larger southern mills, will be present.

The first step toward enlarged activity was the establishment of zones throughout the South in order to enable more frequent meetings of social service workers. The present plans call for a one-day zone meeting each fall and spring. One object of the zone meetings is to give each zone specific problems to discuss and present at the annual convention. Also in the zone meetings an opportunity is offered for discussion of problems peculiar to the section included by the zone boundaries.

The proposed program calls for exchange or ideas and information by the groups of nurses, teachers, general workers, etc., these exchanges to be handled through the group chairman and the association secretary.

The first session of the convention will be held on the evening of June 11, and Charlotte people will be requested to furnish the program for this meeting. Some of the speakwho have been secured to address the convention include Alex Long, prominent mill official of Rock Hill; Dr. Harold Meyer, of Chapel Hill, and Dr. Howard W. Odum, head of the public welfare department of the University of North Carolina.

The Greenville zone wille present a program on health education on the morning of June 12, and the Greensboro zone will give a program on the morning of June 13, the subject to be the community at play. Charlotte will asked to entertain the delegates one evening during the meeting.

Marion W. Heiss, of Greensboro, is president of the association. The association was organized at Greenville in 1918 and in addition to meeting at that city, conventions have been held at Roc Hill, Spartanburg, Gastonia, Greensboro and Columbia.

Industrial Development of the South

(Continued from Page 7)

states formed only 5 per cent of the total spindleage against 6 per cent in 1860. The growth which began in 1880 brought the proportion up to 11 per cent for the cotton-growing states by the next census year.

Southern mills in all branches of the cotton industry produced an output valued at more than $560,000,000 in 1921. This value represents 42 per cent of the total output of cotton goods for the country. Wage earners in the southern cotton mills numbered over 194,000 in the same year or almost half of all cotton mill operatives in the United States.

By 1912 the consumption of cotton by mills in the cotton-growing states had definitely surpassed that of the mills elsewhere. In the twelve months ending with February, 1925, the South's share has been over two-thirds of the total consumption. Sixteen million spindles turned southern cotton into southern-made yarn in 1924, while the entire number of spindles, active and idle, in the South in 1924 was over 45 per cent of the spindles in all American mills. The latest official statements as to capital in industry are those of the census of all capital in cotton manufacturing in the United States was invested in the South. The five succeeding years have brought about 15 per cent expansion in spindleage to the southern mill industry and scarcely any in other sections. The share of the South in the entire investment probably forms a larger percentage at present than it did in 1919.

In total yardage of woven goods the cotton-growing states showed an output in 1921 which compared with New England's output as 4 to 3. The South's leadership is confiend to the coarser products, the chief examples being sheetings and mills have the bulk of the output drills. In print cloths the southern and the quality is rapidly overtaking the best northern standards. In the firmer fabrics as lawns and nainsooks supremacy rests with New England. The South, however, is extending its production of fine goods. Cotton-knit goods are made in considerable quantities in several southern states.

Auxiliary establishments, including plants for bleaching and finishing, have not caught up with the weaving industry in the South. A few years ago almost the entire output of the textile mills was sent North for finishing and late in 1924 it was reported that only 40 per cent of the goods produced in the Piedmont section could be bleached and finished there. Dyeing is now done to a great extent in connection with the weaving mills, but for printing the southern industry continues to depend on establishments in the North. In staple goods, however, the South is fully competent to prepare its products for market.

The once valueless cotton seed has become since the Civil War an important raw material for producing both fat products and fertilizer. The value of crude cotton seed products amounted to $182,000,000 in 1924.

It was long doubted whether it was possible for the iron industry in the South to compete with other sections in steel making or in finished iron and steel products. As a contrast to the days when Birmingham pig iron was sold to steel mills in the middle western and Northern states, the time has arrived when freight cars and ships made in the South of southern steel carry finished products to the North, the West and overseas. Authoritative estimates show that the southern output supplies about one-half of the steel products required for local needs.

Current Expansion.

The most obvious conclusion from a survey of southern industries is actively expanding. Not alone the major ones contribute to the expansion. Railroads and power systems are being used to the limit of their capacity. Construction of factories and office buldings gives further proof of growth.

It is diffiicult to cite any resouce of the South which is not now being used to some extent. Extension of the food industries awaits the enlargement of demand. At present the meat-packing industry in the South is of relatively small proportions, but whenever the growth of population creates a market for a much larger supply of meat food the South can enlarge its production. Canning, which is at present a highly perfected household industry, is not developed commercially to any extent south of Maryland. Here again, the market must be assured before any extensive addition to the national food supply will be

a profitable venture. Dairying, which was for many years a conspicuously negelcted activity, has made notworthy progress in the past quarter-century. In certain sections of the South there is room for further enlargement of dairying to supply milk and butter for local use. Vegetable oils milled in the southern states are for the most part sold for refining and further manufacture in other sections. It is to be expected that ultimately food products and other manufacturers from these oils will be made in the South.

Discussion at present centers upon the artificial silk manufacture which is already in progress, paper making and the manufacture of varnish for which the production of China wood oil is being introduced. Natural silk now has a small place in southern textile manufacture.

Aside from the manufacture of cotton gins, in which the South has led since before the Civil War, this section produces little of the machinery required for agriculture or industry . This situation points to an opportunity for new enterprises in the future.

It took almost forty years for the South to earn back the wealth which was destoryed by four years of warfare. By 1900 per capita wealth exceeded that of 1860. At present the estimated value of all propertey in the southern states is somewhat over 22 per cent of the national wealth, but the notable fact is that the rate of increase is higher in this section than in the remaining states. While bank deposits in the entire country have increased twentyfold in a half century, deposits in southern banks have been multiplied by forty. Outside capital is still required for the full development of local resources. The relatively high interest rate paid in the South for loans for construction enterprises is one significant indication that the capital accumulation of the section has not yet overtaken the opportunities for its employment.

Meeting of Texas Textile Association

(Continued from Page 18)

Rakestraw, S. P., LaGrange, Ga.
Reed, C. E. General Electric Co., Dallas, Texas.
Runge, H. E., Draper Corp., Atlanta, Ga.
Rankin, E. F., McKinney, Tex.
Rutledge, Ben., Loom Fixer, Dallas, Tex.
Smith, Robert, Loom Fixer, Dallas, Tex.
Smith, Mr., Office, Dallas, Tex.
Staples. R. T., Dyer, New Braunfels, Tex.
Stegall, R. L., Master Mechanic, Bonham, Tex.
Smith, W. F., Supt., Waco, Tex.
Tatum, C. S., Supt., Bonham, Tex.
Tenant, J. A., Master Machanic, Waxahachie, Tex.
Tillson, C. R., Asst. Supt., Waco, Tex.
Vencent, O., Overseer weaving, Dallas, Tex.
Vantroopgovier, G. E., Chemist, Decatur, Ill.
Wear, P. G., Salesman, Dallas, Tex.
Wilson, J. O., Supt., Cuero, Tex.
Whetstone, A. L., Supt., Love Field, Tex.

Meeting of Cotton Manufacturers' Association of Georgia

(Continued from Page 21)

This may require five or six years, but at the end of this time, we will be there with the trade, but without competition."

Let us assume for a moment that this man is able to fully put across this crude policy, and see what happens. He is continually making a market under his cost, and we will assume, under the cost of his competitor. The result is, in time that his competitor is forced into liquidation, but the mill stands. The Company is re-organized, and my friend finds himself facing the same competition, but capitalized on a much lower basis, resulting in a competitor much more difficult to handle than formerly. He probably has another five or six years' to kill his new competitor, and the chances are this time we have another funeral, but my wise friend will be the corpse.

This man crudely expressed the policy of a great many mills today.

The other side of this picture will show theoretically every mill radiating from a central point, which we will call the American Cotton Textile Institute. At this central point, we will find the greatest outstanding American Manufacturer whose personal interest is divorced entirely from any mill or group of mills. With this man is one of the greatest of American statisticians, surrounded by necessary force to gather and disseminate complete statistics covering stocks, past sales, unfilled orders and any data required to enable American Cotton Manufacturers to intelligently shape their policy at all times.

From this central point will radiate all of the American Mills, irrespective of section, grouped according to various classes of constructions that individual mills are equipped and balanced to produce. With every Mill reporting fully to the Institute, and receiving in return full and complete data, we will have an industry pitched on broad and sound principles. This naturally is predicted upon the complete elimination of the ignorance, jealously and lack of confidence that appear to thoroughly permeate the industry as a whole today.

Such a plan, based safely within existing laws, if endorsed and supported one hundred per cent, could and would serve the industry in various ways, accomplishing results that is impossible for individual mills or groups of mills to accomplish, as organized at present. This may sound so bold as to be ridiculous, but bigger things than this have been accomplished once men get the necessary inspiration.

I submit these two pictures to the consideration of American Cotton Manufacturers for what they may be worth.

We have had a very interesting year from the stand-point of association activities. Among the important matters handled, I would mention in their calendar orders:

Power rate adjustment, Compensation Insurance rate adjustment, Traffic Department matters of importance, Cotton Rules.

Legislation—20 Amendment and Federal Arbitration law, nothing of very great importance in State.

In closing, I wish to assure you my continued interest in our association, and to urge our entire membership to give the association more consideration. Its strength depends directly on the interest you show in the work of your officers. There appears to be a little inclination to pass the buck to Atlanta contingent, and we fear a feeling on the part of some outside of Atlanta to leave it too much to Atlanta. With this in mind, I suggest to your nomination committee that you nominate for your new officers men in other sections of the State.

Your nominations should not be used wholly to pay respect to some member. You should select men you are sure will devote the effort and time required to follow through whatever the Association handles. Our office is now thoroughly organized to go forward. Up to this time, Secertary McLaurine has been building his foundation which I would say about complete. He has fully demonstrated his ability and fitness for the work and if our officers and members will give him support, he will increase his usefulness every year, but he can not do this alone. I have found work and a lot of it, and there is more to be done. This, I assure you I have enjoyed, and in passing the reins to my successor, I do so with my best wishes for success and assurance of my hearty support.

Robert Gregg, president of the Georgia Manufacturers' Association, W. J. Vereen, president of the American Cotton Manufacturers' Association, E. C. Dwelle, president of the North Carolina Cotton Manufacturers' Association and W. H. McLellan, president of the Louisiana Cotton Manufacturers' Association were introduced and each made a short address.

G. L. Fossick of Fossick's Statistical Bureau of Memphis, Tenn, read a thirty minute paper on the Compilation and Significance of Cotton Statistics.

Norman Elas lead a discussion on "Labor Turnover" and there were also short discussions on other subjects.

It was planned to spend the after-

noon at one of the Country Clubs, but rain prevented any golf playing.

The Banquet.

The banquet Tuesday night was noted for its absence of speakers and its entertainment features.

In the election of officers, George S. Harris was re-elected president and all other officers, including the board of governors, were elected for another year.

Resolutions adopted at the meeting included a resolution asking the Georgia legislature to enact a law prohibiting the employment of children in factories under 14 years of age. The present law allows a few children under 14 to work on special permits. A second resolution adopted the Southern mill rules covering the buying and selling of cotton.

Opposes Night Work

URGING that night operation be discontinued by all Southern mills, W. Stackhouse, president of the Marion Manufacturing Company, Marion, S. C., writes the Southern Textile Bulletin to stress several reasons why night work is hurting the mill situation. He says:

"I read in a recent issue an article by M. W. Darby, treasurer of Cherry Cotton Mills, Florence, Ala., on night operation of mills, and I want to add my endorsement to what Mr. Darby has so ably stated in this article.

"I believe that if night running in our cotton mills was discontinued that it would not only solve the problem of over-production of yarns, but that it would have a favorable effect in reduction of the agitation of child labor laws with which we are continuously threatened by National legislation.

"I believe that the discontinuance of night running in our mills, and the compulsory education law requiring children under fourteen years of age to attend school, would greatly reduce the agitation of child labor.

"The little mill of which I am president has never operated a night run, except for a period of about two and one-half years during the war, at which time we were working on Government orders.

"I believe that a further agitation of this question at this time would result in material benefit to our Southern mills, and I hope that others will express themselves through your columns on this subject."

Samples of Chinese Grey Goods Available.

Samples of Chinese-made grey sheetings and drills, received from Trade Commissioner Howard, Shanghai, have been sent to the New York district office of the Bureau of Foreign and Domestic Commerce, where they will be made available for inspection by interested American firms. Chinese grey goods are being sold in Turkey, Egypt, the Philippine Islands, and the Dutch East Indies, and in some of these markets are offering serious competition to American brands.

Index To Advertisers

Where a — appears opposite a name it indicates that the advertisement does not appear in this issue.

Mercerized Waistings

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ial. One construction which is used extensively, and which forms the basis for many weaves and stripes, is 64 by 72, with 50s-1 warp and 30s-1 soft twist filling. The fabric which we have analyzed is about this construction in the ground, although a warp of 55s-1 has been used instead of 50s-1.

Another finer construction which is used in many of the higher grade fabrics is 72 by 96, with 70s-1 or finer warp and 40s-1 soft twist filling. These two construction give a good general idea regarding the yarns used and the sizes which render the best results and also gives a general idea regarding the constructions employed. The soft twist filling is used, because better results can be obtained when the cloth is mercerized. Soft twist in the yarn allows the various cotton fibres to lie more nearly parallel in the yarn, thus reflecting the light and giving more lustre. In a good many fabrics Egyptian cotton is used for the filling, because this material has been found to give better results than other kinds of cotton. Possibly, there is more Egyptian cotton used for filling in fabrics which are to be mecerized than there is in any other one material with the exception of knitted fabrics. Following is the analysis of the fabric considered which contains a dobby pattern stripes of crowded yarn, and also a plain fabric of a higher construction and with finer yarns.

Analysis No. 1.

Width of warp in reed, 29½ in.
Width of fabric finished, 28 in.
Ends per inch finished (over all) 84 in.
Ends per inch finished (ground), 68 in.
Reed 32x2.
Ends in warp 2-16 2,288 2-16 equals 2,352, total ends.
Warp yarn 55-1.
Filling yarn 30-1.
Picks per inch, grey, 72.
Warp take-up, 7 per cent.
Warp weight, grey, .0547.
Filling weight, grey, .0843.
Total weight per yard, grey, .1390.
Yards per pound, 7.19.

Analysis No. 2.

Width of warp in reed, 29½ in.
Width of fabric finished, 28 in.
Ends per inch finished, 72.
Reed 34x2.
Ends in warp 2-16 1,974 2-16 equals 2,038.
Warp yarn 70-1.
Filling yarn 40-1.
Picks per inch, grey, 96.
Warp take-up, 6 per cent.
Warp weight, grey, .0369.
Filling weight, grey, .0843.
Total weight, per yard, grey, .1212.
Yards per pound, grey, 8.25.

Most of the fabrics which are of the construction described are made on ordinary or fancy looms, and comparatively few are made on automatic machines. This is true partly because the mills which can produce yarns of the required quality do not contain many automatic looms and also because there is a much greater necessity for having the cloth produced contain few flaws when compared with cheap carded materials. Then it is also great advantage to be gained through questionable whether there is any the use of automatic looms when fine warp yarns are used. In any case, it is at least certain that the advantage which is obtained is not as great as it is on fabrics which are woven from rather heavy yarns. A large portion of the mercerized fabrics are made with fancy dobby jacquard weaves, and for these weaves the ordinary automatic arrangement is not very adaptable.

In making patterns for these cloths it is almost always the practice to make the figures almost entirely of filling floats. This shows up the figures more prominently, and when the cloth is mercerized the results are more desirable. Sometimes warp floats are used in combination with filling floats so as to bring out certain effects, but they are not used extensively because the warp is usually of much finer size than the filling and does not show up any effects very well. Stripes are sometimes operated from the same beam as the gorund yarn, and this probably has been done in the cloth which we have analyzed. This method can be taken if the weave and threads per dent can be adjusted correctly, but the price of cloth and the demands of buyers often make such a thing impossible, and the stripe must be made from an extra beam. When colored stripes are being produced, even though woven with plain weave, they are practically always paleed on a separate beam.

Exhibition of Students' Work

The annual exhibition of students work was held on May 4th at the Textile Department of the North Carolina College, Raleigh. The exhibit was held in the Textile Bulding and was seen by a large number of visitors, these being estimated at over two thousand.

All machinery was in operation-carding, spinning, weaving and dyeing; the machines being operated by students. As the visitors entered the bulding, they were each presented with a souvenir of the occasion, this being a badge depicting a young lady holding in her hand a banner with the word "Textile" and the class numerals "1925" woven into it. This was the work of one of the students who will graduate in June. Members of the senior class acted as guides, conducting the visitors around the building and explaining in detail the different processes of cotton manufacturing.

Considerable interest was manifested in the finished products from yarns to fabrics, which included dress goods, shirtwaisting and other products of the loom. Especially noticable were the fabrics made with Rayon ,which received very favorable comment from the visitors.

The Development Of The Spinning Frame

(Continued from Page 12)

It has also been known for a long time that if the middle top roll is not weighed, but rests more lightly on the fiber, it does not act as positively as before. It carries the fibers from the back to the front roll, but without having a definite grip. Under these conditions the rolls may be brought as close together as their diameters will permit. The closer setting of the rolls makes the feeding of long and short fibers more uniform. When a fiber comes under the influence of the rapidly revolving front rolls, it is pulled out from under the light middle top roll without being damaged.

In order to make the middle top roll as light as possible it is sometimes made of wood. In 1912 Richard and Hinds, of Holyoke, Mass., patented the hollow metallic top roll, Which consists of a tube supported between two gudeons (Figure 48). This has been manufactured for several years by the Metallic Drawing Roll Company. In order to make the light middle top roll function most successfully, the distance between the middle rolls and back rolls should be increased, so as to unlock the fibers or reduce the number of twists per inch, before drafting.

The principle of the small diameter middle rolls is employed in the long-draft system of Cesoni and Lirussi (Figure 49) of the S. A. Grande Stiro Filatura (The Long-Draft Spinning Corporation), Milan, Italy.

The same principle in a modified form is used in the long-draft system of Fernando Casablancas, of Sabadell, Spain (Figure 50). Casablancas uses a pair of belts or aprons mounted on the middle rolls. The front loops of the belts approach close to the bites of the front rolls and deliver both long and short fibers to them. The grip of the belts is sufficiently resilient to release the individual fibers as they are grasped by the front rolls.

Many other systems of long draft have been developed using rolls, belts, plates, and other mechanical devices to transport the mass of fibers as they reach the bite of the front rolls.

Although long draft is still in the experimental stage, it is full of promise. It means that the number of preparatory operations previous to spinning may be reduced ,and a proportionate saving made in labor and in equipment. It also, means as has been said, that the mixture of long and short fibers can be spun more successfully.

The introduction of long draft may mean the changing over of old machines, or it may mean the scrapping of machines which will be rendered obsolete. How much of each, remains to be seen, but in the long run, all benefit by the introduction of any such improvement and advance in the art.

The Future.

From the history of spinning, as we have traced it, it is possible to escape the conclusion that the general priciples of the spinning frame are well established, not only by the process of trial and error, but also by many years of use.

We have already mentioned the efforts made toward larger-diameter rings and longer traverse, but these developments are changes in degree rather than in principle.

We have also mentioned the improved methods and materials of manufacture, which have kept pace with the progress of metallurgy

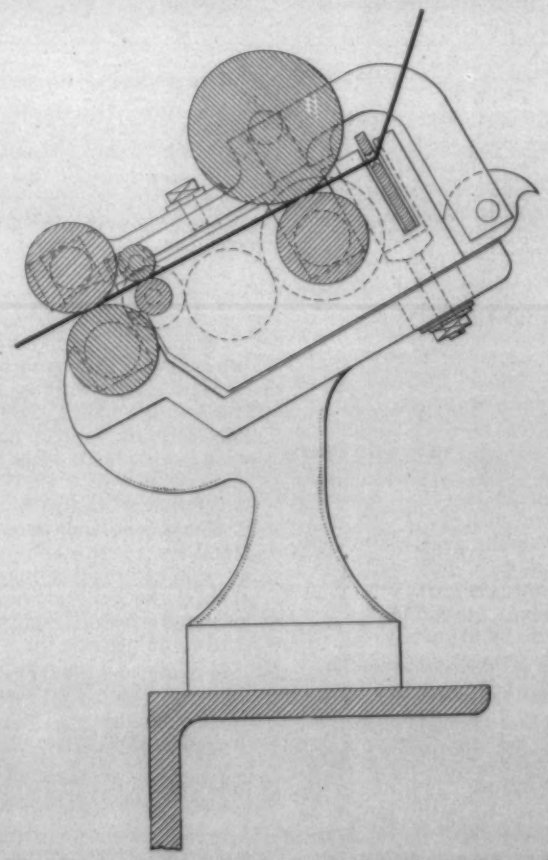

Fig. 49—Long-Draft System of Cesoni and Lirussi.

and the improvements in machine tools.

Before the introduction of machinery, the making of yarn consisted of three hand operations: carding, roving and spinning. With the advent of labor-saving machinery the work was sub-divided and a number of additional operations were introduced. The present tendency is to combine the advantages of both systems.

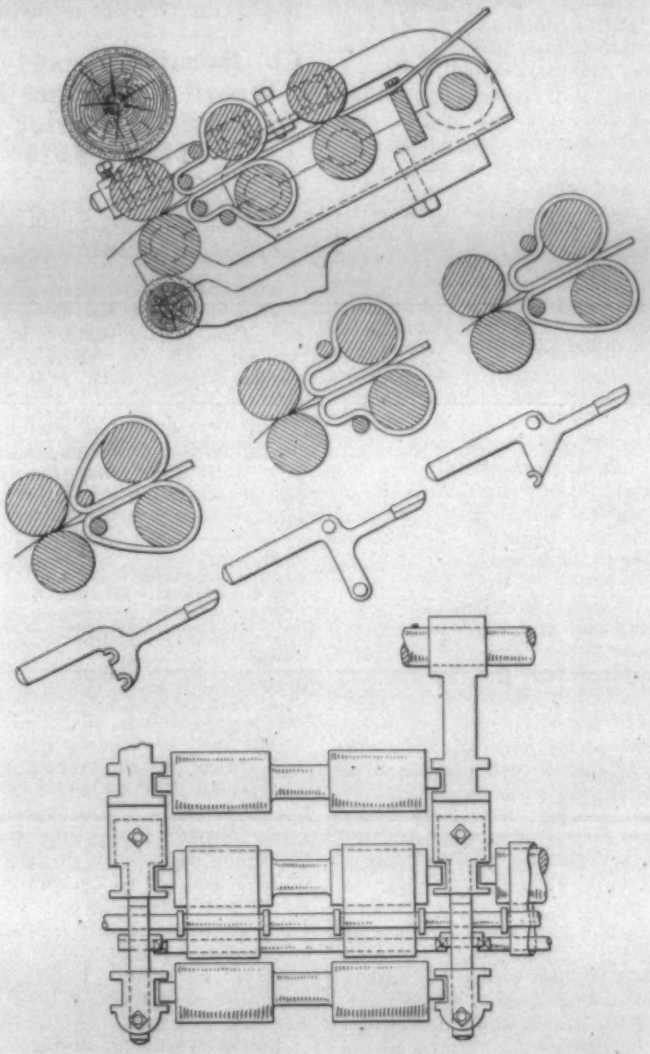

Fig. 50—Long-Draft System of Fernando Casablancas.

Manufacturing Efficiency Increases

American industry is making big strides in increasing its efficiency. More goods are being turned out with less labor, and, particularly since the war, also with proportionately less machine power. The amount of labor and "installed primary power,, since 1914 has definitely decreased in proportion to the volume of production, owing largely to increased efficiency in management and technical labor saving improvements, in the view of the National Industrial Conference Board.

The volume of production, according to a chart prepared by the last quarter century (1899 to 1923) has increased 185 per cent, while the number of wage earners during that time has increased only 90 per cent; "installed primary power" going into the productive process, during the same period increased 236 per cent. The increased use of machinery, however, does not tell the entire story, for, according to the chart, "installed primary power" and labor employed both dropped off in proportion to the volume of production since the year 1914. This in the view of the Conference Board, indicates that administrative and technical improvements in the utilization of both labor and power are playing and increasingly important part in the growth of production.

Gloves and Hosiery Lead in Dresden Exports to the United States.

During the first quarter of 1925, declared exports from the Dresden consular district to the United States of cotton gloves amounted to 207,666 dozen pairs valued at $591,-087 and of the cotton hosiery to 133,-917 dozen pairs with a value of$427,-544 as against 353,936 dozen pairs worth $1,045, 319 and 144,021 dozen pairs valued at $322,291, respectively, during the first three months of 1924 ,the Department of Commerce is informed by Consul Dreyfus, Dresden. Cotton hosiery shipments to the United States have steadily increased since 1923, notwithstanding the advance in the average price fo rthe first quarter from $1.82 in 1923 to $2.23 in 1924 and $3.19 in 1925. During the first three months of 1925, cotton gloves retained the lead among exports of all classes of merchandise from this district

Standard Methods for Textile Tests

Washington, D. C.—Recommendations for general methods of testing textile fabrics were adopted here by the textile committee of the Federal Specifications Board, specifications for sheetings were practically completed, and tentative specifications for conveyor and friction belting were taken up. In addition, the committee discussed wiping cloth briefly and settled minor discrepancies in specifications for waste.

An umpire system for the determination of differences between Federal Government purchaser contractors as to whether deliveries meet specifications was also outlined by the committee. All of the actions which have reached the final stages in the committe must be referred to the board for approval before bing promulgated.

Seek Uniformity.

Recommendations for methods of testing textiles are designed to bring unformity of practice among all Government departments in testing their purchases, so that contractors may know what to expect, and may, if they choose, make the same tests themselves before delivery to satisfy themselves that the textiles will meet the requirements fully after having fabricated.

The testing methods are those developed at the Bureau of Standards for determining fiber identification, breaking strength, yarn count, atmospheric requirements, width, etc.

These will be sent to the Federal Specifications Board for approval and circularized among the various departments concerned, which may adopt them immediately or wait until the official order is issued, about six weeks hence, when compliance with the specifications will become compulsory. These specifications were gone over with the trade some time ago.

The umpire system for the reference of disputes arising from tests or other causes is designed to expedite settlements of such differences and avoid court action.

The specifications for sheeting, which were practically completed by the committee today, will be snt to the board when in final form, and will be circulated among the departments before being promulgated officially. These also have been discussed with the trade.

Belt Test Faulty.

In taking up the specifications for belting, the committee considered differences of opinion regarding methods of testing. The general practice has been to have a piece of the duck from which the belting was made left on the belting, then test the duck. This is considered unsatisfactory, as the point is to determine the quality of the belting as such and not merely to determine the quality of the fabric from which the belting is made. The Postoffice Department is the principal purchaser of belting, although some of different character is bought by the Navy Department and some other agencies.

Before and decision is reached in the study of belting specification, the trade will be consulted regarding the suggestions before the committee. It is planned by the committee to call a joint meeting of representatives of the departments interested with belting and duck manufacturers in the near future, before this subject is carried far.

Co-Operative Report on Boll Weevil Emergence From Cage Tests Prior To May 1, 1925

Compiled by U. S. Bureau of Entomology, Delta Laboratory, Tallulah, La.

Another co-operative station has been added since the report of April 16. This is the station at Auburn, Alabama of the Alabama Experimental Station with J. M. Robinson co-operating.

The percentage of weevils placed in cages last fall which had emerged prior to May 1 at the different points is shown in the following table:

Locality	% Emerged From Cages
Auburn, Alabama	11.54
College Station, Texas	5.27
Florence, South Carolina	4.66
Baton Ronuge, Louisiana	4.37
Clemson College, South Carolina	2.78
Experiment, Georgia	1.33
Aberdeen, North Carolina	.84
Rocky Mount, North Carolina	.32
Holly Springs, Mississippi	.08
Tallulah, Louisiana	.01

The most interesting figure so far this spring is the exceedingly high emergence of 11.54 per cent at Auburn, Alabama. Approximately the same number of weevils were placed in the same cage during the fall of 1923 and up to this date in 1924 no weevils had emerged.

At Florence, South Carolina the emergence in 1924 prior to May 1 was 0.15 per cent. This year, however, the emergence prior to May 1 was 4.66 per cent.

The survival at College Station, Texas continues to approach a normal one.

At Tallulah, in the average of nine years, about 40 per cent of the total emergence has been completed by May 1. The average emergence prior to May 1 in the past nine years is about 0.60 per cent. However, this year the emergence is only 0.01 per cent.

It is interesting to note that the weevil emergence is still progressing, further indicating that the weevils have been able to survive the winter in fair numbers at the stations.

United States States Shipments of Cotton Goods to Its Noncontiguous Territories.

Shipments of cotton cloth from continental United States to its noncontiguous territories during March, 1925, showed an increase in the case of Alaska and Hawaii and a decrease in the case of Porto Rico, as compared with shipments during March, 1924. The March, 1925, shipments were as follows: To Alaska, 36,592 square yards, $8,743; Hawaii, 809,605, $207,841; Porto Rico, 3,728,854, $654,083. Hosiery shipments were valued at $2,555; $14,765; $37,082; and other knot goods at $4,406; $31,014; and $22,901, respectively, during March, 1925.

Clark's Cotton Records

Statistics for Week Ending May 9, 1925.

	1925.	1924.	1923.
Visible supply American cotton	2,757,000	1,702,000	1,597,000
Into sight for week	91,000	91,000	84,000
Mill takings for week	241,000	192,000	170,000
Mill takings since Aug. 1st	12,203,000	9,592,000	10,646,000
Exports for week	48,000	70,000	44,000
Exports since Aug. 1st	7,361,000	4,985,000	4,147,000

Government Reports.

	1925.	1924.	1923.
Acreage this season	40,403,000	38,709,000	34,016,000
Indicated crop July 25	12,144,000	11,412,000	11,065,000
Indicated crop middle of July	11,934,000		
Indicated crop end of July	12,351,000	11,516,000	11,449,000
Indicated crop middle of Aug.	12,956,000		
Indicated crop end of Aug.	12,787,000	10,788,000	10,575,000
Indicated crop middle of Sept.	12,596,000		
Indicated crop end of Sept.	12,499,000	11,015,000	10,135,000
Indicated crop middle of Oct.	12,675,000		
Indicated crop end of Oct.	12,816,000		
Indicated crop middle of Nov.	12,992,000		
Indicated crop end of Nov.	13,153,000		
Ginned to Oct. 1st	4,527,671		
Ginned to Oct. 18th	7,600,826	6,415,145	6,078,321
Ginned to Nov. 14th	11,163,400		
Ginned to Dec. 1st	12,225,000		
Ginned to Jan. 16, 1925	13,308,037		
Ginned to March 20 (final report)	13,618,751		
Carryover beginning cotton year	2,319,000	2,573,000	4,879,000

Cotton Exports.

Following is a comparison of the exports by months in running bales, including linters:

	1924-25.	1923-24.	1922-23.
August	277,641	244,415	272,808
September	737,010	689,435	378,390
October	947,556	781,722	798,664
November	1,306,000	770,002	858,337
December	1,076,000	845,581	607,853
January, 1925	1,076,000	546,253	473,436
February	818,838	482,146	359,657
March	734,697	332,168	318,210
April		320,774	259,984
May		326,357	160,368
June		230,979	214,851
July		211,633	171,469
		5,772,000	4,864,027

American Consumption of All Kinds of Cotton, Excluding Linters.

(In running bales, 000s omitted.)

	1924-25		1923-24		1922-24	
	Per Month	Per Season	Per Month	Per Season	Per Month	Per Season
August	357	357	492	492	526	526
September	435	793	484	975	494	1,020
October	530	1,322	542	1,517	534	1,554
November	492	1,814	532	2,049	579	2,133
December	533	2,347	462	2,510	529	2,663
January 3	589	2,924	577	3,088	610	3,273
February, 1925	550	3,324	508	3,595	567	3,840
March	582	3,874	484	4,079	624	4,464
April			480	4,559	577	5,041
May			414	4,991	621	5,661
June			350	5,341	542	6,203
July			347	5,688	463	6,666

Cotton Goods

New York.—The cotton goods markets continued quiet last week and prices showed a tendency to go lower. Some constructions of wide staple print cloths held fairly steady with spot commanding a premium of a quarter cent over future deliveries. Southern mills are reported as well sold ahead on these goods.

Trade in brown sheetings drills, sheetings and other coarse yarn goods was dull and prices unsteady. Fine combed yarn goods did not sell freely and prices were irregular, but mills still have a fair amount of business on these goods. The market for 4-4 bleached cottons was weak and further concessions were notd on sheets and pillow cases. The demand for fine ginghams was limited to spot requirements and cheaper ginghams and colored domestics were dull.

It was a slow week in tire fabrics and little new business was reported. Tires are being shipped steadily by manufacturers however, and this movement is regarded as a very encouraging factor in the fabric trade. It is belived that many tire manufacturers will need new fabric supplies within a short time.

Trading in cotton duck was confined to small lots for prompt delivery. The price basis showed little change with single filling quoted at 19½ to 21 cents and double filling at 22½ to 23½ cents.

The market for combed and carded broadcloths has been neglected throughout the week, with quotations held unchanged. The 128x68s combed remained 20s to 20½ cents; 112x60s, 19 cents; half combed, 18½ cents, and carded, 15¼ cents. The 100x60s carded were offered for 14½ cents and 60s for 14 cents.

Warp stripe sateens have been hard to move even in small amounts. The price of second hand offerings has been nominal in the absence of trading. The 140x6s, stripes and plain, have held to 20 cents; combed 128x68s were 18½ cents; half combed, 18¼ cents. The 96x56s were offered at 13¼ cents and 96x50s at 13 cents for futures. Fancies are to be found at less than these prices.

Rayon mixtures for upholsteries and dress purposes are selling moderately, new lines being offered weekly. Fancy printed goods on broadcloths, pongees, sateens and the fine count print cloths in English print designs continue in moderate demand. The call for duck is lighter. Fine crepes and some fine yarn dyed specialities are wanted for early use and mills are receiving inquiries looking toward next year's production. Cotton domestics are dull.

Marshall Field & Company in their weekly review of the wholesale dry goods trade say: "Current wholesale distribution of dry goods was considerably greater than last week's volume and exceeded also that of the same week a year ago. Road sales were well ahead of a week ago and showed a marked improvement over the corresponding period last year. Customers in market were

Cotton goods prices were as follows:

Print cloths, 28-in., 64x64s	7
Print cloths, 28-in., 64x60s	6⅝
Print cloths, 27-in., 64x64s	6⅜
Gray g'ds., 38½-in., 64x64s	9¾
Gray goods, 39-in., 68x72s	11
Gray goods, 39-in., 80x80s	12¾
Brown sheetings, 3-yard .	14
Brown sheetings, 4-yard .	11¼
Brown sheetings, standard	15
Ticking, 8-ounce	26
Denims	20
Staple ginghams, 27-in., ..	11½
Kid finished cambrics 9½a10½	
Dress ginghams 18½a21	
Standard prints	9½

Improved Conditions In Indian Cotton Mills.

India has been fairly successful in the introduction of reforms contained in Amendment 2 of 1922 to the Cotton Factories Act, which brought establishments employing less than 50 people within the act, provided for a 60 hour week for adults, forbade the employment of women on night shifts, reduced maximum daily work hours for children to 6, and raised the minimum age of children from 9 to 12, according to Assistant Trade Commissioner Sabine, Bombay. In cotton and weaving mills, the number of children employed has decreased almost 25 per cent. largely as a result of the vigorous measures taken to prevent children working in two mills during the same day. Unregistered establishments showed a higher proportion of children to adults than the larger mills, and the inclusion of the smaller plants under the act was designed to close this avenue for employment of very young children. The movement toward shorter hours is most marked in Bengal and Assam, while Bombay mills appear to work up to the limits permissible under the act, according to reports of the Bombay and Central Provinces which also comments upon the effect improved ventilation has had in producing greater contentment among the mill operatives.

The Yarn Market

Philadelphia, Pa.— The yarn situation failed to show any improvement last week. Spot sales by dealers were reported at prices considerably below the market. While actual buying continued on a very limited scale, there was a very encouraging increase in the number of inquiries for carded knitting yarns and it is believed that considerable business will soon develop in these yarns. Buyers price ideas were so low that many inquiries failed to create interest among spinners. Actual sales were limited to very small lots for spot delivery and buyers failed to show any interest whatever in future requirements.

Prices on mercerized yarns, which have held well through the recent dullness, were shaded somewhat last week, but sales were small.

Yarn production has not been curtailed as much as is generally believed and the majority of mills are still operating upon almost normal day basis. Many spinners are urging drastic curtailment and a general movement to reduce production is expected within a short time unless there is a markd improvement in business.

The yarn business has again arrived at the place where the reluctance of consumers to buy and the pressure of dealers and spinners to sell have combined to weaken the market value of all yarns. This is the time of the year for this sort of thing to happen. Last spring and early summer the margin between cotton and yarns diminished almost continuously. The expectation is becoming general here that, barring a sustained rally in cotton, the same thing will happen this year.

Prices which were considered purely nominal, were published in this market as follows:

Southern Two-Ply Chain Warps.

2-ply 8s	39	a	2-ply 26s	45	a46
2-ply 10s	39½	a	2-ply 30s	46½	a47
2-ply 16s	41	a	2-ply 40s	59	a61
2-ply 20s	41½	a42	2-ply 50s	67	a68
2-ply 24s	44	a45			

Southern Two-Ply Skeins.

8s	38	a	40s	56	a57
10s to 12s	39	a	40s ex	59	a61
14s	40½	a	50s	67	a68
16s	41	a	60s	72	a74
20s	41½	a	Tinged Carpet—		
24s	44	a45	3 and 4-ply 35		a35½
26s	45a	46	White Carpet—		
30s	46	a47	3 and 4-ply 37		a37½
36s	55	a56			

Part Waste Insulated Yarn.

6s, 1-ply	34	a	12s, 2-ply	36½	a
8s, 2, 3and 4-ply	35	a	20s, 2-ply	40½	a
10s, 1-ply and 3-ply	36	a37	26s, 2-ply	45	a
			30s, 2-ply	46	a

Duck Yarns.

3, 4 and 5-ply			3, 4 and 5-ply—		
8s	37	a38	16s	41	a42
10s	38	a39	20s	41½	a42½
12s	39	a40			

Southern Single Chain Warps.

10s	39	a	24s	44	a
12s	39½	a40	26s	45	a
14s	40½	a	30s	46½	a48
16s	41	a	46s	60	a
20s	41½	a			

Southern Single Skeins.

6s to 8s	38	a	20s	41	a
10s	38½	a	24s	43	a44
12s	39	a	26s	44	a45
14s	39½	a	30s	47	a48
16s	40	a			

Southern Frame Cones.

8s	37	a	22s	40	a
10s	37½	a	24s	41½	a
12s	38	a	26s	42	a
14s	38½	a	28s	43	a
16s	39	a	30s	45	a
18s	39½	a	30s tying in	44	a
20s	39½	a	40s	56½	a57½

Southern Combed Peeler Skeins, Etc.

2-ply 16s	56	a60	2-ply 50s	85	a
2-ply 20s	58	a62	2-ply 60s	90	a
2-ply 30s	65	a67	2-ply 70s	95	a1 00
2-ply 36s	68	a75	2-ply 80s	1 05	a1 10
2-ply 40s	75	a80			

Southern Combed Peeler Cones.

10s	50	a	30s	60	a
12s	51	a	32s	62	a
14s	52	a	34s	64	a
16s	52½	a	36s	65	a
18s	53	a	38s	68	a
20s	53½	a	40s	70	a
22s	54	a	50s	75	a
24s	54½	a	60s	85	a
26s	55	a	70s	95	a
28s	57	a	80s	1 10	a

Eastern Carded Peeler Thread-Twist Skeins.

20s, 2-ply	52	a	36s, 2-ply	62	a
22s, 2-ply	53	a	36s, 2-ply	62	a
24s, 2-ply	55	a	45s, 2-ply	69	a
30s, 2-ply	58	a	50s, 2-up	74	a

Eastern Carded Cones.

10s	42	a	22s	50	a
12s	43	a	26s	52	a
14s	44	a	28s	54	a
20s	49	a	30s	56	a

Yarn Spinners' Bulletin

The weekly bulletin of the Southern Yarn Spinners Association says:

"The yarn market remains stagnant. Only small trading of hand-to-mouth purchases. Reported market prices in spite of the falling cotton market remain firm.

"Trade conditions are unusual. Actual supplies of spindle cotton are hard to procure, and at a material advance over New York spot quotations. Manufacturers costs, owing to intermittent operations are high. Demand for manufactured goods is small. Stocks, as well as productions have been absorbed. Today there are no stocks either in dealer's, manufacturer's or mill's hands, and yet there is no strong demand. Any accumulation of stocks at the present time, or operations in excess of actual orders would tend to weaken an already unresponsive market. Curtailment of production is essential to stimulate a demand.

Want Department

Wanted

Position as superintendent. Forty years old, married. Twenty years experience in all phases of cotton manufacturing. Graduate of Textile College. A-1 references as to character, executive ability, etc. Address: "Experienced," care Southern Textile Bulletin.

Wanted

Position as Traveling Salesman, general mill supply or allied products. Connected with mill at present. Familiar with supplies mill processes. College and business training. Own car. Services available on short notice. Address W. C. W., care Textile Bulletin.

Wanted

Spindle Plumber. Must be first-class or don't apply. Pay 50 cents per hour. Jno. W. Ridenhour, P. O. Box 3, Albemarle, N. C.

Wanted

Tieing-in machine operator who can operate and fix machine. Very light job. Apply T. M. C., care Southern Textile Bulletin.

For Sale

One pair 60 Spindle 11x5½ Woonsocket Slubbers, with chain driven carriage, late model and in perfect condition. High Shoals Mill, High Shoals, N. C.